DOCUMENT RESUME

ED 091 058 PS 007 195

AUTHOR	Costello, Joan; Peyton, Ellice
TITLE	The Socialization of Young Children's Learning Styles.
INSTITUTION	Yale Univ., New Haven, Conn. Child Study Center.
SPONS AGENCY	Children's Bureau (DHEW), Washington, D.C.
REPORT NO	OCD-CB-388
PUB DATE	Aug 73
NOTE	146p.; Filmed from best available copy
EDRS PRICE	MF-$0.75 HC-$6.60 PLUS POSTAGE
DESCRIPTORS	Cognitive Development; Communication (Thought Transfer); Conceptual Tempo; Cultural Factors; *Disadvantaged Youth; Early Experience; *Individual Differences; *Information Processing; Intervention; Learning Characteristics; *Learning Processes; Play; *Preschool Children; Preschool Programs; Socialization
IDENTIFIERS	*Cognitive Style

ABSTRACT

This report explores the possibility of constructing a conceptual framework to account for variations in learning styles observed among preschool disadvantaged children. It begins with a review of the literature on preschool intervention programs relating to ways disadvantaged children approach new experiences; gather, organize, and process information; and choose to act or not to act in response to the information. A discussion of play is included, as the arena in which children demonstrate the ways they have organized their perceptual worlds and the range of actions consistent with their self-bounderies. The influence of caretakers on learning styles and the biological and psychological bases of individual differences, is discussed. Also included are discussions of cognitive style research, cultural influences on learning style, means by which the child constructs a perceptual world, and social learning concepts of learning. The report concludes with a summary statement suggesting some ways to conceptualize the socialization of learning styles and some research directions. (SBT)

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The Socialization of Young Children's Learning Styles

Joan Costello and Ellice Peyton

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Yale University
Child Study Center
New Haven, Ct.

August, 1973

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Joan Costello and Ellice Peyton*

Introduction

This study was undertaken to explore the possibilities of constructing a conceptual framework to account for variations in learning styles observed among preschool disadvantaged children. As one of a research group in a West Side Chicago preschool, the senior author was concerned both with the natural development of social competence and the design of preschool experiences which would foster greater competence. Some of the children had styles of approaching the world which seemed to limit their access to information and new learning. These children not only seemed to need the preschool most, but they probably benefited least. They were not socially competent among peers--but there was more to be said than "they're immature". Under supportive conditions, they demonstrated intellectual abilities in the same range as their more competent peers. They used their intellectual strengths sparingly, however. While a minority of preschoolers in our school fit the extreme picture sketched above, there appeared to be a continuum of competence associated with (a)how the children approached situations, gathered information and acted upon it, and (b) the quality of their interactions with parents.

There has been much cognitive development and self-concept research which contrasts lower class with middle class children, black with white children, rich

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* This work was supported by Grant #OCD-CB-388 from the Office of Child Development, U. S. Department of Health, Education, and Welfare. We express our gratitude to Linda Hughes for her assistance in this project.

with poor children. On almost all counts, the poor, black, and lower class groups come out "worse" on the measures. A satisfactory study of differences within social class, racial, or economic groups is difficult to accomplish and few exist. Some of our work in Chicago involved comparative studies of children and families within the housing project community where our preschool was located. We investigated the differences in play, interpersonal relationsips, cognitive functions, and family child-care patterns for children who were functioning very well, for those who were not functioning well, and for those who fell in between (Costello,1970;Costello & Martin 1970).

While we learned that a great many things differentiate children within race and social class, and that those differences often parallel differences between race/social class groups, we did not feel that we had a handle on why this was so. By reason of our broad clinical experience prior to the preschool research project, we recognized that the varieties of child behavior in our West Side population were much the same as in other populations. However, there was a higher frequency of many developmental problems among our study population than among more advantaged populations. We also noted parallels between children with developmental difficulties and children from similar social class circumstances who had spent their preschool years in institutions. In most cases the institutional children we had known were white or Purerto Rican rather than Black. The similarities suggested that we were not observing "cultural" differences, but rather problems in development associated with early experience which occur more often in economically depressed and socailly oppressed/depressed groups.

Differences between and within social class groups can be demonstrated in many areas which relate to competent human functioning. This state of affairs

led us to seek a level of analysis which would provide us with a comprehensive framework for explaining the diverse ways children learn to approach the world, to gather information about it, and to try out and ultimately construct patterns of action in relation to that world. While interested in how children organize and use information, we were first of all intrigued with the information seeking/gathering process which underlies cognitive structuring, and its apparent relationship to personality dynamics.

While aware of the importance of biological and temperamental factors in development, we observed consistently that children who were not developing their full range of competencies were often ignoring, avoiding, or restricting their approach to experiences in ways which temperamental characteristics did not seem to adequately explain. In searching for a way to understand the nature and intensity of their involvements, we were aware that selection and attention to relevant stimuli in the environment were very basic considerations. We observed in varying degrees, children who look but see little, who listen but do not hear, who touch but do not feel. Restricted attention to sensory stimuli and a narrow range of perceptual awareness which characterized a number of children on Chicago's West Side, is parallel in form, if not in content, to the restricted range of sensations and perceptions one also observes among certain privileged children and adults. In both cases, the exclusion of experience--the selective inattention to environmental information--seems to serve the adaptive purpose of maintaining a psycho-economic balance between comfort and anxiety. It seems entirely plausible to draw a parallel between the upper middle class American who selects information to avoid coming to terms with the world's complexities, and the lower class American who selects information to

avoid attending to uncontrollable or discomforting events.

The child's approach to the world appears to be a function of his parents' approach. Just as much of the experience he has with the "outer" world is interpreted and modulated by his care-givers, so his conception of himself in relation to that world is in some way influenced by his parents' sense of their place in it. When his experiences with that world are as often malicious as they are benign and when his care-givers must cope (or not cope) with many realistic obstacles in their own lives, these circumstances may increase the likelihood of his learning to "inattend selectively" to a wide range of environmental events. His counterpart in another social class often encounters a more benign world whose supportive characteristics less often lead him to exclude experiences from awareness in order to get on with a liveable life. The child who excessively excludes experiences from awareness, whether he be lower class or middle class, black or white, decreases his sources of information. As a consequence, the information he organizes, processes, or uses in formulating hypotheses about his world will be reduced likewise. To the extent that intellectual and social competence grow out of the experiences a child assimilates, we can conclude that children who "exclude" information from their perceptual field will reduce their rate of intellectual and social growth. More lower class than middle and upper class children (in this country) grow up in circumstances of environmental stress which place heavy burdens on their parents' ability to handle their childrearing functions, and it is plausible to expect a higher frequency of developmental foreclosures or immaturities among lower class children. Most

of our professional staff agreed that the burdens of childrearing required a great many more parental strengths on Chicago's West Side than in the more benign circles of suburbia.

Rationale for Studies in this Area

In the normal course of development, one observes a wide range of personal styles in (a) the selection of stimuli to which attention will be paid, (b) the perceptual organization of the information provided by these stimuli, and (c) the range of actions to be taken or avoided in response to this information. The socialization of information gathering styles is a problem of considerable interest to a developmental psychologist in seeking some understanding of the differences in learning styles and intellectual and social competence to be found within various populations of children. Many children appear to develop information gathering styles which severely limit their learning about the environments in which they live. We were aware that the families of children who were developing very well on the West Side of Chicago experienced the same social, economic, and societal pressures as the families of children who were not learning very well. The differences seemed to relate to the capacity of some families to mediate the negative impact of the environment so that their children grew up with a considerably greater degree of competence than the children in other families who were unable to mediate and ameliorate the impact of the wider societal pressures. This is not to say that the impact of social and economic oppression is easily mediated or softened by parents, but it is to suggest that parents with unusual strengths successfully raised children who were not so beaten down by the social system that they avoided interactions

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with it. If we are correct in assuming that the interferences with learning we observed among children on the West Side can be observed in children in all other places, the question then arises, what are the mechanisms of socialization and personality development which differentially affect the frequency of occurrence of certain styles? While within a given subculture, a particular behavioral style may be entirely adaptive, expectable, and positive, that same behavioral style might severelylimit the individual's possibilities for interacting with, and finding a place for himself within, a larger social system in which he wishes to have a place.

Definition

A child's learning style is his characteristic way of approaching new experiences, gathering information, organizing and processing it, and choosing to act or not to act in response to the information. Children of similar intelligence may approach new opportunities for learning in quite different ways. The differences we are most concerned about here are those which lead to widely disparate outcomes. If one child gathers new information and experiences little need to exclude some of it perceptually before he goes on to organizing it, making associations, raising questions about it, combining it with other stored information, formulating new ideas, etc., he is presumably at an advantage when compared with a child who has problems gathering information because he has learned not to see or to hear, or he can only attend selectively to certain classes of information. It is possible, of course, that certain highly focused learning styles, while narrow, may give rise to the development of great talent as in music, art or mathematics.

Prescriptions, Permissions, and Prohibitions

Implied in this conception of learning style is a notion that socialization may be a more potent influence on learning styles and ultimately on social competence than biological endowment or temperamental characteristics. Since parenting in virtually all cultures includes teaching what-you-must do (prescriptions) and must-not (prohibitions), there is always some restriction on what it is permissible to perceive, to think, to feel and to do. The range of the permissible is probably as important as the content and severity of the prescribed and prohibited. Two things seem important. Learning is hampered (a) when prescriptions and prohibitions apply to perceptions, thoughts and feelings, as well as to actions, and (b) when the boundaries of prescriptions and prohibitions are ill-defined in which case the child may draw them tightly just as a measure of safety.

For the developmental psychologist, the question to be answered is how the individual child--while still a dependent infant--learns about his role in his culture. He does not learn it in the market place; he learns it somehow in the care of (often) a small number of caretakers. Yet, when he emerges into the market place to take up his role among his peers, he is already a child of his family culture, their subculture, and their larger culture.

To understand how the child learns his approach to his world, an approach which appears to have considerable stability, we need to answer a number of tough questions.

1. How does the child learn what is relevant and what is irrelevant in his stimulus world? How does he select the sensations to which he will attend and from which he will draw information?

2. How does the child learn the range of action possibilities which he is free to test out and to adapt to the information he gathers? How does he learn when to act, when to defer action?

3. Who teaches him about his culture, his family's role within it, his clan or community's status and role within it, the relationship of these to his major culture? (Parenthetically, we will need to ask for the future how he learns membership in a broad human culture as a world citizen.)

4. Why do children--and their families--within subcultures differ so much in their views of the world, their information gathering/processing strategies, and the actions they consider appropriate? Who teaches them a world view, how and when? What form does it take? How soon is it established and what happens if one attempts to alter it?

5. What sorts of behaviors are influenced by biological considerations--genetic and temperamental? Are some biological dispositions more powerful than others? Are some entirely modifiable by environmental events, and if so, in what direction?

Long before Carlos Castaneda (1971) became a student of Don Juan and learned about the many experiences which surround us, without "touching" us, the effects of perceptual selection and the influence of symbolic representations in shaping what we come "to know," "to learn about," had been studied in both psychology and anthropology. Edward Hall (1959, 1966), in the Silent Language and the Hidden Dimension, provided many examples of non-verbal and spatial behavior which must be understood in terms of the symbol systems of the cultures where they originate. Eric Berne (1971) wrote that non-verbal communication often tells a person something different from the accompanying

verbal communication. Body communication is usually much closer to the primitive referent--it points clearly. Kubie (1972), in a recent presentation to the Society for Research in Child Development, speculated that one of the major problems with emotional development and learning in our culture is the premature use of symbol systems (specifically language) to label sensations and feelings. Because it is easy to manipulate symbols we often attend to symbols triggered by sensory inputs without really attending to the sensations themselves. The child/adult then shifts attention away from the immediate evidence in the observational field and deals instead with representations. It is probably for this reason that early constructions of the perceptual world tend to perpetuate themselves throughout life.

Organization of This Report

We will review pertinent research findings and conceptualizations in several areas which highlight one or another aspect of learning style. From a consideration of preschool intervention programs for disadvantaged children, we turn to a discussion of play as the arena in which children demonstrate the ways they have organized their perceptual worlds and the range of actions consistent with their self-boundaries. The influence of caretakers on the development of learning style follows. We turn then to the biological bases and to the psychological bases of individual differences, and to a discussion of cognitive style research. Cultural influences on learning style are discussed next, and are looked at in Parsonian and Sullivanian perspectives. Means by which the child constructs a perceptual world are considered next. Social learning concepts of learning are considered briefly since both appear necessary to a

conception of learning style. Finally we conclude with a summary statement suggesting some ways to conceptualize the socialization of learning styles and some research directions which can further our understanding of learning styles.

Preschool Interventions: Effects and Implications

A number of reviews of the preschool intervention literature have already been conducted. Thus, we set about extracting some common findings and common questions and speculated about the psychological processes which might underlie the benefits or non-benefits attributed to intervention programs.

In a fascinating document, Lichtenberg and Norton (1970), reviewed the experimental intervention programs and studies funded by the National Institute of Mental Health and spelled out some research implications. It is their conclusion that development is fostered by actions in which a child participates with other people, especially those actions which bind him to people in mutually fulfilling ways. "Such actions entail the child's self-regulation, his initiative in dealing with the others, and a reciprocity of self-regulation and initiative on the part of the others. Such actions take place for the child under conditions of playfulness and pleasure"--at least in the ideal circumstance. "The mutual construction of actions that bind adult and child in real, concrete, and satisfying forms, rather than training imposed on the child to implant the proper ways of living, is the caretaking process most associated with productive growth."

Mutuality in pleasure may be difficult to establish if the child's constitution is outside the normal range, or if the caretakers are burdened by worries or cares of their own. Such actions come about only when stimulations and challenges in the environment are within the range of capacities of the child and of the adult. In the normal situation the child is increasingly open to novelty in his world. He explores, he creates, he develops capacities which

enable him to discover and regulate himself in more intricate ways, and to discover and handle the world in new and unique ways.

Children learn ways of social relatedness from their social relations, rather from direct tuition. They also learn through imitation, which combines repetition with what is observed, and experimentation with the self. The relationship between social interaction and development is especially evident in the cognitive and language development spheres. Lichtenberg and Norton conclude that many programs for disadvantaged children are relatively effective but that short-term programs usually make short-term alterations. Intensive programs which involve a high ratio of adults to children, which last a long time, and which include alterations in surrounding educational and family institutions, may have longer effects. This is especially true if they are founded on principles of mutuality, initiative, and pleasure, that is in actions conducive to growth. They conclude that there is no magical and relatively inexpensive social technique or engineering detail for use with children under five. "The proper care for children during the early years must involve a relatively high frequency of concrete encounters between adults and children in a context of mutuality and pleasure and challenge."

These authors emphasize the importance of satisfying actions, and indicate that they infer from both the empirical and intervention studies that poor developmental conditions actively turn infants and children away from life.

In this connection, Klaus and Gray (1968) suggest that parents of disadvantaged children reward behaviors that leave them alone rather than rewarding exploratory behavior. Greenberg (1962) likewise found that children in a residential nursery, who did not receive a lot of adult attention, were easier

to soothe and easier to "turn off" by two months of age. They seemed more ready to lead less of a life.

In many of the intervention programs reviewed, the emphasis on work and knowledge acquisition was considerable. Pleasure was subverted to more respectable motives rather than identified as a primary program component. Yet, program designers often agree that play and gratification are the bases for all growth, health, emotional maturity, and cognitive functioning. . . .

According to Lichtenberg and Ricton,

> "when we take the whole topic of increasing complexity in action, we come upon what may be the origin for the conflict among writers concerning direct tuition for disadvantaged children or the provision of care that is more than tutoring or cognition training. The child is an actor; cognition comes out of actions of the child in his process of separating himself from the world and coming to regulate his relationships with that world. If cognition is underdeveloped, it may very well be the case that it is so because the child did not engage in the kinds of acts that are fundamental to an underpinning for cognition. . . . To attempt to impose upon the child by direct teaching various conceptual forms that are unrelated to the background of actions he has experienced is equivalent to demanding greater differentiation and integration than the child can comprehend. . . . The task for the development of children from lesser to greater complexity depends upon keeping the child engaged in the concreteness of the world in such a fashion that he will construct larger and larger units of action and will come to possess the experience of the operations that form the foundation of high level conceptual processes."

These authors suggest that many disadvantaged children come to educational settings from backgrounds in which they have experienced much deceit, which makes them wary of unknowns. Such children often do not benefit from free play and permissiveness in classroom situations. According to this analysis, such children are prone toward repeating the past. Their free play does not flow from curiosity and exploration, which depend upon hope and confidence, rather it is pervaded by the rapid repetition of previous routines. Free play which fosters growth calls for an openness that the children do not

possess, thus it does not fit within the range of the child's capacities. For the child whose experiences of frustration have been excessive, it is necessary to offer tasks that allow him to complete something successfully. Such tasks must not encourage the child to continually repeat past actions. Tasks must fit the child's capacities, without fostering his avoidance of new challenges.

Learning to deal with new in novel ways is of central importance in development. By the time the child is five years of age he has solidified his modes of dealing with the new. Murphy (1962) indicates that by three years of age preferences are already established, and she suggests that the hopelessness and distrust of some disadvantaged children indicate that these children are not simply lacking in cognitive ability, but are mobilized actively against cognitive functioning. "Theirs is the defensive coping of reestablishing old patterns over and over again. To be open, exploratory, and searching is seen as merely exposing onesself to new hurts and defeats. It seems better not to try to construct actions in new ways."

Lichtenberg and Norton cite evidence from a variety of studies which suggest that the first two-and-one-half to three years of life are the most important developmentally for later learning. Sometime around the age of three a child's patterns of autonomy are established and his organized approach to the world is laid down in basic form.

Bronfenbrenner's (1972) review of the effectiveness of early intervention programs includes a variety of studies and evaluations of programs. The short-term benefits on cognitive growth of programs involving teacher control, structure, and convergence of specific tasks is by now well known.

Such programs tend to place less emphasis on freedom, exploration of materials or ideas. There appears to be some evidence that immediate cognitive gains in many programs are accompanied by passivity in response to the evaluative tasks, even if the performance is technically superior. Changes in attitudes towards school appear to occur more often in the discovery-oriented programs, whether or not such programs demonstrate short-term cognitive benefits.

Programs involving parents appear to have beneficial effects on a number of dimensions at any age. However, the earlier the age, the greater and often the longer-lasting effect. Bronfenbrenner considers the first three years of life optimal for such intervention, but at this time he doesn't pin it down further. In view of his belief that the second and third years of life are the amenable to the influences of modeling, it would appear that he would recommend some time within the 18 to 36 month age range as optimal if intervention is to effect the child directly. Interventions directed at parents in the parent-child diad could presumably be effective at any time after birth, since influences on the parents' interactions with children presumably continue, especially if parents gain greater satisfaction from their new skills and their children's responses to them.

A review of a large number of federally funded projects for children was completed by the staff of the Huron Institute in 1972. They concluded that while IQ and achievement gains were reported by most preschool programs, these gains did not tend to persist. The differences between preschool and control children decreased as a function of both losses in the preschool group and gains among controls. The amount of improvement, and to some

extent the durability of gains were a function of the explicitness of objectives, the soundness of instructional methodologies, the amount of time devoted to attaining the objectives, and the similarity between the instructional format and the test format used to evaluate the program. Data on non-cognitive benefits of programs were extremely limited and usually unique to a given project. Regularity of school attendance and ability to remain in regular- as opposed to special-track classes appeared to be a long-term benefit of some programs.

The most effective projects, in terms of cognitive or achievement criteria, were usually small, well-designed, clearly-focused and among the most structured.

Evidence for the effectiveness of earlier intervention with younger children in school based programs is limited but not convincing.

In Huron Institute's most comprehensive review, we are most impressed by just how little is really known about benefits derived from preschool programs. Since most visits to preschools, and most discussions with parents and staff lead one to a belief that they have contributed "something", we must ask, "what"? Most reviews, as well as individual program evaluations, suggest that children gain most when their parents participate in programs. Is it possible that preschool programs have opened doors to personal growth for parents, whose satisfaction with expanded roles for themselves has increased their emotional resources as well as their knowledge and skills? From their enhanced sense of well-being and competence, they may be able to devote more attention to childrearing and may derive some satisfactions from their children's growth.

The Temple University child development research and evaluation center for Head Start reported a number of studies in a 1968-1969 Annual Report. In interactions with teachers, children who demonstrated gains in Head Start centers were less emotionally dependent, more able to use teachers to help with tasks, received more positive teacher responses, and coped more effectively with unsatisfactory teacher reactions. Gainers evoked more attention from people and were more able than other children to make learning self-rewarding. Children from crowded homes made fewer realistic demands for help from the teachers, were less effective in evoking reactions from teachers when they did make demands, made less constructive use of the help they received from the teachers, but were less distracted by other children. The child from the lower class, crowded home had a less intensive relationship with the teacher.

In a factor analysis, it was found that children who were high on a factor of impulsivity, excitability, and defiance were less effective in getting the teacher's attention. The same children had greater difficulty continuing their ongoing activity when another child or adult entered their field of action. Children rated high on inhibition, withdrawal, and mistrust exhibited fewer positive attention-getting responses toward teachers than other children. These findings, consistent with our Chicago findings, suggest a vicious cycle. Both the impulsive, excitable, defiant children and inhibited children have difficulty relating to others. Adults are less responsive to these children even when they make requests for help, thus the children's opportunities for meaningful actions-with-adults are curtailed. If, as so many investigators suggest, learning in the preschool years depends upon active engagement with the interpersonal and material world, the findings from

many Head Start Centers suggest that children have developed fairly consistent modes of approach to people and things by the time they enter a preschool at 3 1/2 or 4 years of age. Their styles of interacting with teachers and peers are often mirrored in their play and in their response to a variety of potential learning opportunities. The difficulty in redirecting or expanding their learning styles suggests that these styles have adaptive value in the child's personal life space. An understanding of how learning styles develop appears necessary before many curriculum innovations can have their greatest impact.

A seminar sponsored by the Bernard van Leer Foundation was held in Jerusalem in November of 1972 to discuss curriculum and compensatory early education. A document summarizing that seminar, released in December, 1972, listed 75 points derived from that meeting. Most of their findings and recommendations have appeared in the preschool education literature at least as far back as Hess and Bear's (1968) edited collection of views on early education. This seminar's report was highly redundant with earlier compilations which may well indicate that educational curricula will not provide the dramatic breakthrough for solving the problems of disadvantaged children that we anticipated in the early 1960's; without a more adequate assessment of those problems.

Minuchin (1969) reports variations in curiosity style among disadvantaged preschool children. Some are mostly verbal, some scan and observe, and some mostly manipulate material or explore sensations. She reports that: (a) there is reasonable consistency in a child's stance toward environmental stimuli seen along an approach-avoidance continuum; (b) curiosity and exploration can be assessed in a preschool situation; (c) more exploratory children also had a

more differentiated self-image, a more positive expectation of adult support and dilemma resolution, and greater conceptual mastery; (d) correlations with other measures of curiosity and exploration (rankings and object curiosity scores) support the above trends.

Much variation exists within inner-city disadvantaged population. The developmentally high risk group isolated by the study had a syndrome of diffuse self-image, an environment of sustained crisis, little coherence, ineffective and poorly defined adults, little conceptual grasp of order and conceptual relationships, and they also showed little curiosity or exploratory behavior. They may be children who have had few firm expectations or schemata and therefore do not perceive events as unexpected, dissonant, and calling for exploration. High risk children may need preschool experiences that stress environmental coherence, active involvement, and interpersonal contacts, as well as cognitive and verbal training. (cf. animal studies in which the mother mediates novel stimuli and gives the young an opportunity to explore what is new while being protected from what is new and dangerous.)

In our Chicago preschool, we were led to looking beyond the curriculum as a solution to the learning problems of children when test score gains were not necessarily accompanied by more active approaches to learning. We have described three groups of children who seemed to need different things and to use the preschool experience quite differently (Costello, 1970, 1972). For some, almost any opportunity or direct teaching experience seemed to "connect." They became involved, enjoyed their involvement, and often demonstrated that they had learned something new by introducing novel elements into their play, and their verbal expressions--whether alone while playing or in exchanges with

peers, teachers, or parents. They appeared "open" to a wide range of new learning experiences; they attended to and "took in" the complexity of the stimulus field; and they "acted upon" newly gathered information in many different ways.

A middle group of children was characterized by less consistent attention to and involvement with new experiences, but they varied among themselves in what they became involved with, i.e., "what turned them on" and what they ignored or avoided. Their range of actions based on new information was both more restricted in range and less modulated in execution, intensity, direction, etc. These children had some "leeway" (Erikson, 1972) to engage the world of new experience and to play with it, but some lack of clarity about the range of permissible actions, or a rather extensive set of prohibitions which curtailed both actions and attentiveness to available sources of information.

A third group of children aroused our greatest concern and increasingly stimulated our interest in the etiology of learning styles. Many of these children, while not socially withdrawn, were quite inhibited in their approach to new experiences. This inhibition was not necessarily coexistent with shyness as we usually think about it, since some of these children were sociable, at least superficially. Nor were they typically overprotected in the usual sense of that term; some of them took care of themselves and younger siblings, went to the grocery store and walked to school and home unaccompanied. Their inhibition was specifically related to reaching out to the world of new experiences in their environments, and while most of our observations were in a classroom or playground context, we found the children to be only slightly less inhibited when we saw them at play with peers or siblings (unaware of us),

or in their homes. Their appearance of greater spontaneity and openness in familiar settings usually meant that they were playing out familiar--repeated --patterns with known elements and people.

While some of the third group "gained" most on cognitive test measures, we felt many of these gains were related to increased comfort in the test situation (cf. Zigler & Butterfield, 1968). Gains among the other two groups, averaging 10-14 IQ points, appeared more likely a function of actual learning. With the third group, we felt we were pouring water on closed bottles, i.e., they became "wet" and demonstrated short-term changes, but soon they "dried off" and everything was the same as before. Since intellectual endowment per se did not appear to be the limiting factor, we searched for differences in the child-rearing experiences of the three groups and discovered differences consistent with findings such as those reported in quite considerable detail by Baumrind (1967, 1971), Clarke-Stewart (1972), and others whose research was designed to study parenting influences. These findings are discussed in a later section.

Because of the consistent differences in the play of our three groups of preschoolers, we set out to study the themes and forms of their play in relation to their classroom learning styles. These studies, together with some rather broad conceptions of the role of play in the development of the child, are presented in the next section of this report.

Play

In our Chicago studies we were aware of differences between the play of children who were competent learners in the classroom and those who were not (Costello, 1972, Hirsch, Borowitz, & Costello, 1970, Borowitz, Hirsch, & Costello, 1970, Martin, 1970). It appeared to us that the children's play displayed not only their conflicts or concerns but also the level of development which they had attained. Our observations are consistent with current research in ego development (Loevinger, 1973), which suggests that the characteristic mode of handling reality situations usually reflects the highest level of development attained. Vygotsky (1966) and Erikson (1972), state that play permits the child to reach beyond his present attainments. Children's play varies considerably along many dimensions, especially in its relative constriction or richness. Quite apart from inferences about developmental attainment, we were struck by the extent to which play appeared to serve fewer functions for some children than for others. This was especially true in our Chicago preschool.

One of the most sensible discussions of play in relationship to socialization and learning is Vygotsky's (1966, transcription of a lecture originally given in 1933). He suggests that play, while

> ...not the predominant form of activity, ...is...a leading source of development in the preschool years. The importance of play in the preschool years, and its arrest in intellectually underdeveloped children as well as those with immature affective development suggests that ...it may be the child's most important form of activity in the early years.

He also suggests that imagination arises from action and normally requires opportunities for play in which actions can be experimented with and reversed.

There is no play without rules, there are no rules without imagination. The two are very much intertwined as children test out the limits of things by establishing rules, reversing them, extending them, etc. Below age three, the child is attempting to get a grasp on the real world, to develop a stable world of objects, their limitations, and his relationships to them; thereafter he engages in a great deal of imaginary play which liberates him from the situational constraints of reality. It becomes clear in this context why the period of mother-infant sharing of objects, described by Turner (1963), is so important for the later development of the child. The child's development of a world of stable objects and relationships requires a protective environment and probably an environment in which there is considerable feedback and direction from adults in relationship to the world of objects. The child who lacks either protectiveness or feedback probably does not develop enough sense of the boundaries of the real world to move freely into imaginary play. He is not certain that he can return if he "lets go." Imaginary play at three and four usually includes many areas in which children feel free to spin out fantasies without fear that reality may never return. While all children have some experience with "scaring themselves to death," fearing they may never regrasp reality, others lose control of their fantasy play very quickly and need adult intervention to return to a sense of reality (cf. deep play, high risks, Geertz, 1.72). Clearly if every venture into an imaginary situation is likely to set off a frenetic, uncontrolled train of play which requires adult intervention, the benefits from that imaginary play are likely to be few and in fact they may become associated with punishment.

During the early years, objects may "dictate" activities to a child. A door demands to be opened, a staircase to be run-up, a bell to be rung. The demand

properties of objects have an enormous motivating quality for the young child who, from his mother's lap so to speak, has learned to venture out, to explore without undue fear. The enticement of objects is observable among very young animals, which suggests that novelty and complexity attracts both animals and humans toward exploratory play.

In Vygotsky's discussion of play and its role in mental development, we are again brought to consider the two problems which recur in our thinking about the socialization of learning styles. The first is the definition of relevant stimuli in the environment and the second is the range of permissible actions, or the action space. Vygotsky suggests that children are attracted by different objects and do not move toward all new or attractive objects. Some objects attract and some repel. While some object choices may be related to particular biological response dispositions which are powerfully evoked by certain stimulus properties, and while some choices probably occur by chance, there is the possibility that the caregiver's definition of objects to some extent influences the child's object choices.

In discussing the union of affect and perception, Vygotsky says that early childhood perceptions are generally not independent, but rather are an initial feature of a motor-affective reaction, i.e., every perception is a stimulus to activity.

> In very early play, children act in relationship to what they see, while subsequently, presumably after symbol formation is well along, they are able to act independently of what they see that is, they can act on the symbolic meaning or interpretation suggested by what they see.

In this aspect of development, Vygotsky suggests that play helps the child

learn to guide his behavior not only by the

> . . . immediate perception of objects or by the situation immediately affecting him, but also by the meaning of this situation . . . The special feature of human perception--which arises at a very early age--is so-called reality perception. This is something for which there is no analogy in animal perception.

The child does not simply see a world in color and shape, but also a world with sense and meaning. Meaning in human life comes very largely from human interaction. In Vygotsky's discussion of play one can draw parallels with Werner's description of early object relations, and Parsons', Sullivan's,and Schafer's discussions of internalization of familial and cultural values (discussed below). A case builds for the enormous importance of human interaction in fostering the child's perceptual/cognitive development as well as his social development. If Vygotsky is correct in suggesting that play is transitional between the purely situational constraints of early childhood experience and thoughts which are totally free of real situations, perhaps we can understand why restricted play is so frequently observed in children whose development is problematic, especially those whose cognitive development appears constricted.

During the transition from the preschool to the early school years, we see a change and often a reduction in the amount of imaginative play. A child begins to separate thoughts from objects during the preschool period, and as he becomes more intrigued with thought processes , with internal speech, logical memory, and abstract thought, he becomes more absorbed by the rule-bound sort of play one sees during the early school years. The development of word-play or thought-play, and the freedom to use concepts--i.e., words which explain the

meanings and relationships of things--may depend upon a freedom to play imaginatively in the preceding period. The creation of an imaginary situation--the child's first emancipation from situational constraints--may well give way to the creation of thought-links which represent emancipation from the microworld of imaginary play and a transition into the macroworld where he can begin to make things happen by constructing workable "rules."

The fact that one observes rules within play, and the establishment and modification of rules during the period of imaginative play, is of interest. Vygotsky says, "the essential attribute of play is a rule which has become an affect." The linking of rules to affect is of interest since the actions a child is likely to take in any situation reflect to some extent the affect attached to those actions, the internalized notions of what is good, what is bad, and what is in the permissible range. In another sense, the uncertainty of life can be reduced by establishing rules and creating a zone within which a child essentially controls his world. In the preschool period, he usually does this in imaginary play, while in the school years, he begins to do it in somewhat more life-like situations, as in clubs and groups games.

It is very likely, according to Vygotsky, that play contains the developmental tendencies of the child and it is in this play that he tries to surpass the level of behavior he has already reached. Thus it is common in play to see several levels of development interweaving. In our experience with preschool children, the existence of a higher form of play usually signaled the movement into the next stage, and a sensitivity to transitional play would probably be useful for planning new learning experiences in a school setting. If it is true that the child "moves forward essentially through play activities," then play

is indeed purposeful in the development of the child and the impoverishment of play during the preschool years, from whatever cause, is probably a major impediment to full realization of human potential.

Play probably remains an important human activity throughout life. Before the age of three, play is largely an attempt to organize experience and to develop a stable world of objects via elaborations of perceptions, imitations, and physical manipulations. These ways of "reading" the environment give way to an increasing emphasis on imaginative play during the preschool years and subsequently to establishing and maneuvering rules which permit one to play with the larger environment. It is not uncommon to refer to adults playing with ideas, playing with problem solutions, playing with alternatives. It is likely that the range within which one is free to perceive and to act in early childhood play in some way prefigures the extent to which one can play-fully continue to develop one's human capacities throughout life.

Writing about Jacques Cousteau, in a recent New York Times article, Davidson (1972) states, "the desire to see more, to dive deeper, stay longer, and above all, to have fun, led Cousteau on his long trail of experiments." Cousteau was quoted as saying, "It's fun to do things you were not made to do, like going to the moon or living under the ocean. I was playing when I invented the aqualung. I am still playing. I think play is the most serious thing in the world."

In Erikson's (1972) summary of his previous work on play he emphasizes the role of play throughout life. He suggests that each play construction includes three things, "central conflict, a developmental crisis, and a community historical crisis." These three components are not unlike Parsons' notion of social-

ization into a culture where the needs of the individual, the relationships to primary people, and the relationship to the wider culture are recapitulated. I've wondered if Erikson's notions of conflict and crisis in play can't be stated in terms more related to normal socialization, as in Parsons, or to "central themes," "stage-related themes," "tasks," "challenges," or "historically or culturally prominent events or changes." While reflecting conflicts and crises, play offers much evidence of the solutions, resolutions, and action choices available to the individual, his ways of perceiving his environment and his relationship to it. Play reflects the history of the child's perceptions and action dispositions.

Erikson uses the term leeway to indicate the boundaries of a play space, the range within which the individual is free to play and the boundaries beyond which he cannot go. "Man is most fully human when he can play on all levels, and the individual is most adult when and where he creates leeways for himself by creating leeways for those who are dependent upon him and are interdependent with him."

In discussing Einstein, Erikson points out that he was brought to the formulation of relativity theory in good part because he kept asking himself questions concerning time and space that only children think about. In Einstein's words,

> Taken from a psychological viewpoint (a certain) combinatory play seems to be an essential feature in productive thought--before there is any connection with logical construction in words or other kinds of signs which can be communicated to others . . . All our thinking is of this nature, of a free play with concepts; the justification for this play lies in the measure of survey (free scanning) over the experience of the sense which we are able to achieve with its aid.

The loss of playful leeway according to Erikson, results in a slow inner death which individuals or groups can counteract only by denying their own right to life, and dying faster, or by causing others to die first. There is an eerie quality to the play of children whose development is halted or impoverished. These children tend to come from families where human tragedy abounds, where playful leeway is absent, and where giving-in or giving-up is commonplace. They are often children whose parents are spent, or whose older siblings are in trouble. Some have had a sibling killed, others have known a sibling to be accused of crime and imprisoned. The morbid play of some young children growing up in these circumstances reflects the life patterns of their families. Is Huizinga (1950) right about how historical change can be seen in play? Is it too far-fetched to speculate that the victims of the industrial revolution, i.e., the least skilled and least organized members of the work force, tend to socialize their children in ways which discourage the full flowering of development through play? The potential for development, judging by the unfulfilled lives of older siblings and parents, is so artificially restricted that they develop neither their intellectual powers nor their capabilities for functioning with satisfaction in a social world or a work world.

Piaget (1962) suggests that while play and pleasure are often intimately related, assimilation of life's events, even when painful, makes up much of the play activity one observes. Pleasure in play, according to Piaget, is subordinated to the assimilation of reality to the ego. Pleasure in play, then, becomes the affective expression of this assimilation. Usually, play permits a child to bring his life experiences into manageable boundaries. Thus the play of children appears

very restrictive, highly repetitive, or lacking in many of the components typical of age-mates, one immediately begins to question why. Children who were functioning poorly in the preschool classroom restricted their attention to very few environmental events or alternately gave very fleeting attention to everything in the environment. Secondly, the range of activities which they demonstrated in a play situation were far more restricted than what their motor development or possible activity repertoire could explain. It was as if, they were abiding by orders to "see-no-evil, hear-no-evil, speak-no-evil, touch-no-evil". Safety--as in standing still--was often their guide to activity.

Brian Sutton-Smith (1971, 1973), in his studies of play, emphasizes the importance of exploration in the early years for the learning of the possibilities of stimuli. In play, the child converts stimuli by assimilating them into his own schemata. He noted that in some cultures, children play more than in others. In Turkey, for example, the focus of the very young child's play relates directly to the economic activity of his parents, as in rugmaking. By contrast, the Australian aborigines foster a wide range of play and games which encourage flexibility needed for survival skills. He suggests, as do many anthropologists, that through children's play one can understand the adult roles they are expected to take. In the case of Turkey, where adult roles are well defined, the child can be taught very early what it takes to grow up. In a culture where adult roles or the nature of the terrain require a great range of flexible skills, such as running fast or observing carefully (as in the case of the Eskimo and Navajo adult), one apparently finds much emphasis on play, much time given to it, and many skills and games encouraged and handed down from one generation to the next.

Sutton-Smith indicates that in cultures where the family is authoritarian and restrictive in its approach to life, play is most often restricted and fashioned in terms of real life adult roles. Play may be looked upon as a kind of simulation--a playing out in the child's microenvironment the macroenvironment of the real world. When we encourage children through play to deal with the microenvironment, we protect them from the dangers and complications that would occur if they freely interacted with the macroenvironment. The scale, familiarity, and safety of the small play environment facilitates the child's development and his transformation to adulthood. Sutton-Smith suggests that in playing out the major themes and roles of a culture one notes more flexibility and novelty in the role play of children than in actual adult roles. Reversibility of roles is also experimented with.

Huizinga (1950) relates play to the ritual or sacred play of the primitive man, for whom play was an integral part of all life. The characterization of play as a homogeneous notion is a later invention of language.

As civilizations progressed, according to Huizinga,

> . . . the sacred became separated from the profane, and play became separated from serious work. However, since law, philosophy, aesthetics, and war originally came from a society where they were part of sacred play, the play elements remain in them, even if the sacred element does not . . . Poetry is, in fact, a play function. It proceeds with the playground of the mind, in a world of its own, which the mind traces for it.

Tracing the history of Western civilization through to the present time, he suggests that the industrial revolution of the 19th century killed many of the play elements in culture. Rituals have lost much of their spirit, and he cites sports

as an example. In sports, much of the cultural or religious element has been lost, and what was once play is now hard work.

Throughout the play literature, one comes upon references to "deep play" (attributed by Huizinga to Jeremy Bentham in Theory of Legislation). Deep play is said to occur when the stakes are so high that it is irrational for man to engage in it at all. An example of deep play comes from a description of a Balinese cockfight by Geertz (1972). In Bali, cocks are psychologically identified with men, who view them as detachable or self-operating penises. The Balinese man identifies with the cock, and in so doing identifies with what he most hates, fears, and is ambivalent about. A cockfight is thus a focused gathering where persons are related to one another in terms of a common activity. The players are in over their heads. Having come together in search of pleasure, they have entered into a relationship which will bring the participants greater net pain than net pleasure. The cockfight in Bali simulates the social matrix. In deep play, you risk everything you value, but by so doing you better understand what you value and what you are risking. The risk puts you outside the normal operation of things and enables you to see it all the more clearly. In the daily life of Bali, there is little risk-taking, little social mobility, much shyness and politeness. These everyday aspects of life are in direct contrast to the risk of the fight.

In casting our observations of preschool children against some of these rather broad notions of play, we observed that some children whose play was normally quite restricted appeared to take very great risks, to behave very asser-

tively, and to do so with a great deal of zest. On the one hand, we thought this was a simple release of all that was held back in the usual day-to-day play. Another explanation would be that periods of high risk activity, while in direct contrast to his usual inhibited stance were ways for a child to redefine his relationship to the world by moving outside of himself to look back on his world from a different stance. For whatever reasons, the children usually had difficulty tolerating this risky state. Once into a kind of risk-taking play, many children became frenzied and virtually demanded that an adult (or an older child) terminate the play, usually scolding in the process. They were thereby punished for having taken the risk and returned to an inhibited action pattern, convinced of its inevitability.

Norman Brown, (1959), in Life Against Death, defends the importance of play and blames a culture which has repressed play and other kinds of forbidden desires, thereby fostering neurosis. His book suggests, however, that even when we attempt to reintegrate play into the culture's mainstream, those of us who are part of the culture really miss the point. While he justifies the importance of play and delight in life, he assumes that play is basically purposeless even if in some sense meaningful. In so posing the purposeless quality of play, he really joins the culture he is condemning in assuming that play in childhood, or at any other time, is essentially a purposeless rather than purposeful activity. Huizinga suggests that Western society faces a dilemma at this point in history which is somehow related to the industrial revolution. This may explain why educational and child-rearing advice have, at least in the 20th century, focused on the

socialization of what might be called industrial virtues. Given the remote nature of the factory, it is very difficult to play about being a factory workers, especially since children are usually not admitted to workrooms. What becomes important in an industrial society is not the worker's self-initiated actions, but rather his attention to directions from another or accomodation to the working of a machine (cf. Sennett & Cobb, 1972. The Hidden Injuries of Class). That Piaget suggests play as the major arena for assimilation in early childhood implies that the child assimilates experiences to his schemata. Socializing a child for an industrial society may imply that he learns to accomodate to the external world rather than to assimilate it actively into his schema. Certainly the historical shift in play noted by Huizinga can be documented in the child-rearing and educational literature following the industrial revolution. It is also noteworthy in the design of children's settings, especially schools, that the factory was an implicit if not explicit architectural model, and productive work the major virtue. If one looks at report cards, and particularly at the non-academic qualities on which a child is graded, words like industry, persistence, attendance, conduct, politeness, etc . are commonplace. These are the same virtues which appeared in the early industrial literature as immigrants were being socialized by schools for the factory world.

Only recently, as the preschool movement for disadvantaged children comes to maturity, has the potential for play been given the importance that it had in the nursery school movement--which was oriented primarily towards privileged children. As Head Start began, the emphasis on skills and work and the condemnation of play were vigorously supported. Only when experience taught us that

children's play, work, and learning are all-of-a-piece, did play become a legitimate part of many curricula. We need to understand the definition of play as a waste of time, and the changing mood in which play has re-emerged as a positive activity for children in our time. The cultural history of play, juxtaposed with a history of industrial and later Sputnik-intellectual virtues, needs clarification if we are to understand child development norms and practices. Current interest in play may have very little to do with childhood's full flowering, but a great deal to do with a national worry that people will use their leisure time badly (inefficiently) as the work week goes shorter or as the economy is unable to provide jobs for everyone. If the society is threatened by people who do not use their leisure time productively, it may encourage attention to those elements of the leisure life, e.g. play, which can be "taught" as a guarantee that adults will use their leisure time benignly, if not virtuously. Play is probably never benign, looked at in social perspective, but therein lies another tale.

In Bruner's (1972) paper on the "Nature and Uses of Immaturity," he reviews the socialization practices of higher animals and the importance of play in their socialization. He characterizes the socialization of young chimpanzees as having three crucial variables: (a) a long period dominated by play and increased participation in the play by adults, (b) a decline in the use of punishment and threat as modes of reinforcement of behavior, and (c) the appearance of a pattern involving an enormous amount of observation of adult behavior by the young and the incorporation of that behavior into play patterns. The amount of imitation which can be observed in the young increases in chimpanzees over monkeys. The extent to which observational learning and imitation occur and are incorporated in play increases as

one goes up the evolutionary scale. Bruner makes the connection between observational learning and its application in play.

In a blood-curdling account of the Ik, Turnbull (1972), in The Mountain People, describes the breakdown of a hunting and gathering culture robbed of its economic base and unable to establish a new set of roles in the absence of any basis for predicting or controlling its survival. The play of the Ik children reflects the adult world's harshness, and their play hardly seems playful. Children learn to hang on to one another, to fight for food, to hurt others, to laugh at pain and death. Erikson's (1972) comment on the death of play is pertinent here--when play no longer helps to reduce reality to manageable size, can the culture possibly survive?

A yet unexamined influence on play is television, which offers the child many new play ideas, but also provides him with vicarious experiences with scripts and sets--with implicit messages about how it's "s'posed to be." K. Lustman (1972) has commented that the play of nursery school children has changed over the last twenty years. Children imitate more play sequences from TV, while experimenting with and creating fewer of their own. While these observations are not altogether pertinent to our concern with early socialization of the child's perceptual and action dispositions, it is possible that TV weakens the impact of the family culture and introduces a new problem for the socialization theorist. It seems inevitable that the visual world of the child must expand if he has an ongoing relationship with a variety of TV stimuli. Less clear is TV's effect on his action patterns. While TV may display more potential actions for him to choose,

does it, by its nature, prescribe actions and action sequences? Much evidence exists (Lichtenberg & Norton, 1970) to suggest that children learn most through their own active involvements. The relationship between TV actions and real actions has been investigated primarily through modeling and imitation studies, usually in close time proximity to a TV presentation. We do not know the impact of TV as a socializing agent over the long term where internalization of action dispositions becomes more lasting. Hess (1971), in a study of the socializing properties of teaching machines, cites evidence that computers become socializing agents for elementary school children which leads this writer to consider that early socialization must now be broadened to include not only family members but also the television. If Werner's (1963) and Sullivan's (1953) models of early learning are correct, we should expect TV's influence on children's learning to be a direct function of their caretakers" involvement with it. Unanswered is our question about the effect TV has on the child's use of his own perceptions and his own action repertoire to play-out a view of the world and an approach to it which will be the "right size" for him.

Observations of our Chicago Preschoolers suggested strongly that the impact of TV is mediated by the caretaker, who does more than turn on the TV. He or she relates to it. In homes where the TV provided background sound, children did not seem to attend to it. In families where depression/oppression hung heavy, children did not seem to "learn" very much from TV -- they appeared to look without seeing, much as they did in the preschool. They were <u>not</u> the children who could repeat commercials from memory.

Another kind of study which has some bearing on the importance of play is Rosalind Gould's (1972) study of nursery school children's fantasies. The positive

relationship between language development and the flowering of fantasy expression on the one hand, and the negative relationship between verbal fantasies and aggressive play on the other, are of considerable interest in view of the play conceptions outlined above. Acting-out, aggressive, impulsive children often decreased in their impulsive and aggressive behavior when they began to use language in playing out fantasies more freely.

Burton White's (1969) group in the Harvard preschool study also found more fantasy in their highly competent subjects and relatively meager fantasy in their low competence subjects. More children who are low in competence and fantasy expression are from lower class families than middle class families. However, if one looks at the range of fantasies and behavioral styles in the two social class groups one finds that all styles tend to occur in both social classes. It is simply a matter of different frequencies of occurrence.

Chicago Play Studies

In our Chicago studies of the information-gathering aspects of play, Martin (1970) and Costello and Martin (1971) found that successful apprehension of information available in a playroom occurred for children who moved energetically and looked around freely, who relied on their own initiative without repeated adult urging or permission, who manipulated toys and observed the effects of their own actions. Children who were not successful in seeking and gathering information from the playroom were most noticeable in their self-conscious movements and uncertain visual inspection. Beginning with constricted or disorganized movements and glances, some sought adult direction, few demonstrated initiative, and most did not manipulate toys very extensively, nor attend to the effects of their actions.

In this play situation, we felt we had a window on the behaviors which characterized the children's approach to new objects and learning situations. Clearly, the physically cautious-or unorganized--child who is visually skittish, who is reluctant to initiate actions or to attend to his own actions has developed a style of learning which might better be called a style of non-learning.

In a series of studies of play themes and forms, Hirsch, Dorowitz, and Costello (1970) and Dorowitz, Hirsch, and Costello (1970) found that organization, involvement, and interpersonal responsiveness in play were positively correlated with play themes characteristic of the imaginative play of four year olds and negatively correlated with the presence of immature play themes characteristic of early ages, e.g. nurturance, messiness, etc. Effective classroom functioning was associated with a high proportion of more advanced play themes. Binet IQ was related to play forms and themes concerned with organization, order, control, etc., but not with interpersonal responsiveness.

In sum, our studies suggested that successful learning styles occur in children whose play had moved beyond early concerns with nurturance, trust, unfocused aggression, wild exploratory, messy, unorganized play and had at least reached the stage where it included ordering and controlling materials and events together with reasonable independence of, but not alienation from, adults.

A factor analytic study (Costello, 1971, 1972) of measures taken from play sessions, test sessions, classroom functioning, and parent interviews revealed one major factor whichincluded the maturity of play in the playroom and organization, attention, and involvement in the classroom, all of which imply a high degree of focused interaction with the environment. A second factor included less focused exploratory and social behaviors and did not include any measures

of effective classroom functioning. A third, more cognitive factor, included organization, attention and involvement in play sessions, presence of high level play themes and relative absence of immature themes, ability to attract and sustain adult attention, competence with classroom materials, Stanford-Binet IQ, and scores from the Illinois Test of Psycholinguistic Abilities and the Peabody Picture Vocabulary Test.

The constellation of behaviors and measures which came together in our third cognitive factor support the notion of intellectual development advanced by Fischer (1969) and discussed below, as effectiveness of approach to the environment.

To summarize, play seems to be the best context in which to observe a child's way of approaching the world. His attention to information in the environment, and his freedom to act upon the environment are part of his play. While play comes in many forms, it is probably in fantasy and make-believe play, and in rehearsal play, that one observes most easily the consistency of approach which we have called "learning style".

Influences of Caretakers

In our Chicago research, we observed not only preschoolers, but their younger siblings as well, at home and during visits to the school. Typically, infants were spontaneous, and actively exploring the world. Sometime in the second year of life, some of the children became more inhibited while others continued to explore and to try their skills at mastering the world. The differences in children were consistent with differences in the ways parents related to us and to each other.

Our rather extensive contacts with 50 or so families (less than the total number we actually enrolled) over four years provided rich observations, many of them unsystematic and undocumented. However, the consensus among experienced clinician-observers led to some strong hunches about origins of learning styles, their variety, and their relative payoffs in terms of effective learning and enjoyable, comfortable "growing-up." We began to think less in terms of "good" and "poor" parenting and more in terms of the parent's theories about children, what they were raising children to become, and how they mediated social-political and economic realities by means of their world views and related modes of action.

Scheinfeld (1979), a Chicago colleague, demonstrated that parents' childrearing practices are related to their "theories" about children and the relationship between childhood behavior and adult outcome. Their theories of childrearing, while not unrelated to specific "attitudes", tended to represent a blending of beliefs and practices which were integrated with their life styles. Specific attitudes were less important than how they fit together into a system of beliefs. Almost all parents expressed positive attitudes about education and occupational futures which typified mainstream American rhetoric, but such statements of attitude were often unrelated to theories or practices of childrearing.

Using anthropological methods, Scheinfeld interviewed parents in depth about their beliefs, world views, theories about childhood, etc. He systematically probed for definitions of words to unmask their meanings. For example, when a parent talked about wanting a "bright" child, this response would be probed by asking for synonyms of "bright" as well as for words characterizing the absence or opposite of "bright." Thus, one might arrive at synonyms such as smart, fast or light and antonyms such as dumb, lazy, slow-moving or dark. In so doing, Scheinfeld was able to demonstrate that while some parents have more differentiated world views and notions about children, all parents have theories about the world and about childhood which they translate into their child-rearing practices. They transmit their views to their children, both verbally and non-verbally, predominantly the latter. Consistency and differentiation in child-rearing practices were directly related to the nature of parental belief systems about children. Theories which were most differentiated, comprehensive, and integrated gave rise to the greatest consistency and intentionality in caring practices, presumably because they offered broad notions to guide the parental action in shaping child behaviors. Parents' world views were of central importance for teaching their children how to approach, avoid, or "skirt around" the immediate and the extended environment. For example, a parent who believed that "good things could happen" or that "things get done when people work with people" encouraged his/her child to interact with other children and adults freely, to do things with them, to talk with them. A parent who believed that the only way to get along and avoid trouble was to "avoid messing with people", taught the child to avoid unnecessary interaction, and to limit conversation. The same scheme applied to interactions with the inanimate environment, use of play materials, equipment, etc. For some parents,

teaching children to avoid trouble as a broad injunction, e.g. "no messing around." Such an injunction in turn implied that the less one touches, sees, or hears, and the less one talks, moves or acts, the safer and more trouble-free life will be.

In a longitudinal study of infants (in the second year of life) and their mothers, Clarke-Stewart(1972) found a strong relationship between optimal maternal qualities and children's competence. Optimal maternal care was related positively to children's competency, and negatively to their fretfulness. Children's competence was predictable from optimal maternal care and the mother's intellectuality, and was also related to responsive maternal speech, particularly in the last half of the second year. Among her other findings were that the child's social use of language was related to his mother's vocalizations, and that happy, loving, affectionate mothers had affectionate, smiling children. Beckwith (1972) reports similar findings.

According to Clarke-Stewart, the best single predictor of the child's play in a laboratory situation was the amount of stimulation of toys and objects which he received from his mother at home.

> The complexity of the child's play, however, was not related to the number of playthings available in the home, nor to whether he played with toys or household objects--how much, how many, how varied. The essential role of mother as mediator of environmental stimulation is apparent. Mere exposure to a stimulating environment was not related to skill with objects. Similarly, mere availability of people, including the mother, was not highly related to the child's development. The amount of time spent by the mother in the same room, while correlated with the child's competence, had a lower relationship with competence than did stimulating, responsive, or affectionate maternal behaviors . . . Bailey mental test scores were highly related to the mother's looking and talking, and her general responsiveness to social

behaviors. Her responsiveness was related to the child's score, to his speed of processing information, to his schema development, his language, and to social and emotional indices of competence.

Clarke-Stewart considered his finding one step toward confirming the suggestion that contingent responsiveness to an infant's behavior does more than reinforce these specific behaviors; it creates in the infant an expectancy of control which generalizes to new situations and unfamiliar people. Lewis (1971) has advanced a similar hypothesis. In the second year of life, it appears that responsiveness to social behaviors may be a more valuable maternal quality for promoting a broad range of competencies than responsiveness to distress. Mother's intellectuality was also related to her child's competence, and the relationship between the mother's intelligence test score and the increase in her child's Bailey score was even higher than between maternal intellectuality and final Bailey score.

Children's levels of activity and exploration, their frequent and sustained involvement with numerous and diverse objects, were found to be negatively related to maternal restrictiveness, defined as holding, restraining, reprimanding, directing, caretaking. Observed maternal restrictiveness was also negatively related to the child's second Bailey test score.

The hypothesis of Clarke-Stewart's study was that the mother's preferred mode of stimulation with her child would be related to the child's preferred activity. She divided mothers into three groups according to their relative ranks on measures of materialness, verbalness, and physicalness, and related these maternal behaviors to the children's preferences. The underlying conception was that each of these maternal styles implied that maternal behaviors were being mediated by either "objects", "words", or "physical contact". The mother's

preferences were to a limited extent reflected in their children's behaviors. On each dimension, the highest mean score was obtained by children whose mothers characteristically behaved toward them in that mode. Dividing mothers into four groups on high and low stimulation, high and low responsiveness, it was found that infants' competence and positive emotion were related to a combination of high maternal stimulation and responsiveness, and that low infant competence and low positive emotion were related to low maternal stimulation and responsiveness. Groups of mixed high and low stimulation-responsiveness did not differ from each other. However, the child's positive involvement with his mother was consistently associated with his mother's stimulation rather than with her responsiveness.

Using a cross-lagged panel correlation technique, Clarke-Stewart demonstrated a relationship between the child's Bailey test score and the frequency of maternal visual attention. Other maternal behaviors, such as verbal and social stimulation, positive emotion, contingent responsiveness, and amount of time mother spent playing with the child, all had a positive effect on the child's overall intellectual development. All of these variables are included in the single factor of optimal maternal care, but are not synonous with that factor. Clarke-Stewart considers the best label to summarize the core subset of optimal maternal care variables which increase children's intellectual competence to be "social attention." In terms of maternal attitudes, it appeared that an initially positive attitude toward infants led a mother to be less directive toward her child and to engage in a great deal of physical contact with him--playing with him and stimulating him with objects--and this led to a positive attitude toward the child later on. This suggests an inter-

actional pattern wherein maternal attitudes affect maternal behaviors which the mother then conveys to the child. Mother's attitudes are influenced in turn by her playful and stimulating contact with the child and his response to her.

A summary statement from Clarke-Stewart's thesis captures the essence of her findings.

> A cluster of infant variables, which included measures of the child's competence in the areas of cognitive, language, and social development, were strongly and positively related to a similarly complex maternal factor, which subsumed measures of optimal maternal care on the dimensions of positive emotion, stimulation, and responsiveness. These patterns of competence observed for both mother and child suggest the need for a broad definition of competence . . . . The total amount of maternal stimulation was found to be highly related to infant's overall development. The child's cognitive development and complexity of play with objects was apparently influenced by the amount of time his mother spent with him playing with the materials. Cognitive development was not related to stimulation inherent in the physical environment per se. This demonstrates the importance of the mother as a mediator of the physical environment. Moreover, the mother's preference for interaction mediated by materials was reflected by the child's preference for object involvement.

Baumrind (1971) who has studied the influence of parenting practices on children's personalities, summarizes her 1967 work as follows:

1. Parents of children who were the most self-reliant, self-controlled, explorative, and content were themselves controlling and demanding; but they were also warm, rational, and receptive to the child's communication. This unique combination of high control and positive encouragement of the child's autonomous and independent strivings was called authoritative parental behavior.

2. Parents of children who relative to the others were discontent, withdrawn, and distrustful, were themselves detached and controlling, and somewhat less warm than other parents. These were called authoritarian parents.

3. Parents of the least self-reliant, explorative, and self-controlled children were themselves non-controlling, non-demanding, and relatively warm. These were called permissive parents.

Of particular interest in the 1971 report, is her finding that IQ was strongly associated with achievement oriented and independent behavior, and that more intelligent boys were less hostile, and more intelligent girls more dominant and purposive. The boys' finding is of particular interest in view of Gould's (1972) and Vygotsky's (1966) discussions of the relationship between verbal fantasy development and impulse expression. Is it possible that boys who have become more intelligent have done so because their verbal development and fantasy development have proceeded more rapidly, whereas boys who appear to be hostile and less intelligent are those for whom impulse expression is still their major mode of relating to the world? If this question can be answered, we may be on the road to understanding the relationship between behavioral style and intellectual growth (cf. Fischer 1969).

Baumrind explored whether early IQ could predict later differences in IQ, independence and achievement orientation, and found that frequently IQ did, predict the direction of pattern differences.

> However in many instances, the results were contrary to what IQ alone would predict . . . Moreover, unless the assumption is made that IQ is determined totally by genetic factors, the hypothesis must be entertained that IQ is to some extent dependent upon socialization factors in interaction with genetic factors. For that reason, despite the importance of IQ in limiting the expressions of independence and achievement orientation, it seems that IQ should be controlled only within broad limits in a study of the effects of socialization practices on child behavior. Clearly, IQ is an important factor in the constellation of traits contributing to confident and effective functioning. Even where the occupational and educational range of parents and the IQ range of children were restricted to the upper levels as in this sample, cognitive achievement and interpersonal in-

> dependence were clearly related in important ways to the child's IQ and to an enriched environment. Children with high IQ's and a more enriched environment had a competitive edge, both interpersonally and academically.

Litman, (1969), a colleague of Burton White, reporting on children studied in the preschool project at Harvard concluded that:

> Limited use of resources was observable in both middle and lower class settings. Mothers of poorly developed children were often restricted and unsure of their mothering role, while competent mothers who were accepting of their role and enjoyed and approved of their children seemed to produce well developed children. The mothers of poorly developed children did not have these same feelings of acceptance and enjoyment in their role. The quality of interaction between mother and child seemed more important than the quantity. Again, contingency versus quantity seems to be an important dimension.

Tizard et al. (1972), in studying the effects of different kinds of institutional care on language development, relates the development of language not only to amount and kind of staff talk, but to staff autonomy and the organizational aspects of the nursery as well. Staff relationships had a pronounced effect on the infants. It appeared that the staff's feelings of autonomy or submission were communicated to the children very directly in the kinds of relationships and communications the staff engaged in with the children. These microstudies of institutions, organized along different lines, probably parallel the communities of people in the macroworld whose interactions with their children--especially in the verbal domain--reflect their own daily economic and social experiences (Bernstein, 1960, Hess, Shipman, et al., 1965,1968).

Frenkel-Brunswick (1955), reviewing patterns of personality development in tolerant, democratic-minded versus ethnocentric, authoritarian families, provides some analysis of children's styles of perceiving and thinking which relate to

their personality styles. She notes that children raised in democratic families are more able than those from authoritarian families to tolerate perceptual conflict, to solve problems more flexibly, to relate stories more accurately, to consider the properties of unfamiliar stimuli, etc. Definitions of "what is an American" are more narrowly conceived by ethnocentric children and their parents than by their tolerant counterparts. The rigidity and narrowness of these definitions is consistent with the development of a self-system as outlined by Sullivan (1953), in which the person avoids acknowledging stimuli which come into conflict with his self-system. By selectively avoiding new stimuli, by distorting memory, and by sticking to previously successful problem solutions, the ethnocentric, authoritarian child effectively neutralizes the learning potential of new experiences. He may selectively perceive "what is there". so even if he does not ignore it, he will be little touched by it. Whether we consider learning as simply cumulative, or as a structural modification, we can hypothesize that learning will be limited when information is excluded from awareness or integrated within a limited number of preestablished categories.

Baldwin (1949), studying the nursery school behavior of children in relation to their parents' self-reports, indicated that warmth, democracy, and indulgence seem to have the most widespread impact on the parent-child relationship. Results indicated that democracy was by far the most important of the three factors in accounting for variability of subgroup means: (a) children raised democratically were rated higher on behavior reflecting an active, socially outgoing type of activity, the hostile and domineering kinds as well as the friendly, (b) the children were in a favored position in their social groups; and

(c) they were generally rated higher on activities demanding intellectual curiosity, originality, and constructiveness. Indulgence had a generally opposite effect to democracy resulting in physical apprehension and lack of skill in muscle activities. Democracy does not operate only in the parent-child interaction, but tends to shape all of the child's environment into a general pattern, eg. nursery school, high IQ, etc.

Berne (1971), in his most recent book, comments about the pervasiveness of behavior learned in childhood. Berne's theory of transactional analysis concerns itself with personality and social action but for purposes of this discussion, his description of life scripts will be considered. A script gives purpose to life where it might otherwise be wanting, and is based on the supposition that a child does most things for the sake of other people, usually his parents. Secondly, it gives him an acceptable way to structure his time, acceptable, that is, to his parents. Third, people have to be told how to do things; learning for oneself may be inspiring, but it is not very practical. Berne indicates that the protocol for the life script is conceived in the child's mind at a very early age, although he doesn't state at what age. Life scripts are consistent with Sullivan's (1953) self system, which is said to develop at an age before words or verbal symbols have come into play. Bronfenbrenner's (1970, 1972) statements about modeling as the most powerful means of learning in the second year of life (essentially preverbal) are consistent with these conceptions. Berne believes that children don't listen to big words or statistics. They watch what people are actually doing to, for, and with each other, rather than what they say they are doing.

Berne provides his own evolutionary history of how life broke free from the rigid chemical patterns of primitive life into the complex patterns that we have in human life. He suggests that imprinting is the next step beyond reflexes, and encourages survival. The next step after that is when animals stay with their mothers and learn through play those patterns that were too complex to be transmitted through the genes. Imitation in response to vocal signals was the next step in evolution which resulted in behavior determined (a) by genes, (b) by what they learned at their mother's breast, and (c) by what they saw and heard in the real life of the seas and the plains and the forest, that is, learning from their own experience. He suggests the next level was invention, that is, doing things that none of their kind had ever done before. In this way he makes the case for life scripts laid down both by the genes and through child rearing experiences with parents. He also indicates that, being human, people can move beyond both their genes and their scripts, but he implies that writing one's own script in adulthood is neither usual nor easy. One can observe children learning their lines, if one looks closely.

> One of the frontiers of script analysis is the further study of permissions, primarily through observations of eye movements in very young children. Thus, in some situations, the child glances sideways at his parents to see if he has "permission" to do something; in other cases, he seems to be "at liberty" to follow his own inclinations without consulting them. Such observations, carefully evaluated, may result in a significant distinction between "permissions" and "liberties."

Clarke-Stewart (1972) reported a corroborating finding in that highly competent mothers and their children demonstrated the quality of their relationship through frequent eye contacts.

For purposes of demonstration, Berne suggest considering the following scene:

> A great computer (God) randomly assigns babies to houses. . . . Ten years later, each of the children has learned how he is supposed to react. The one in House 17 has learned: "In this family, when the going gets rough, we get angry." The one in House 23 has learned, "In this family, when the going gets rough, we feel hurt." The babies at 11, 26, and 35 have learned that when the going gets rough, their respective families feel guilty, scared, or inadequate. The baby in 31 learns that "In this family, when the going gets rough, we find out what to do about it." It should be apparent that the numbers 17, 23, 11, 26, and 35 are likely to be losers, and 31 is more likely to be a winner. This is another way of saying that, aside from a doubtful influence of the genes, favorite feelings are learned from the parents.

Later, in reacting to various situations, each one is convinced that his is the 'natural' reaction. The truth is that none of them is natural really, each one had been learned, or rather decided upon, in early childhood.

In reviewing the literature on mother-child relationships in mammals and birds, King (1956) suggested the theory that, under the protection of the mother, types of novel stimuli to which the young are exposed are easily controlled, leaving dangerous parts of the environment as novel stimuli unediated by the pleasant feelings elicited by the mother. Such dangerous novel stimuli lead the young to avoid objects. There is an intermediate phase where novel stimuli elicit cautious alertness. The implication seems to be that avoidance of dangerous objects and stimuli cannot be directly taught by mother, but the fear reduction of a sufficient number of stimuli in the presence of the mother permits independent-exploratory behavior, while at the same time acting functionally for survival.

Both Clarke-Stewart(1972) and Bell (1971) emphasize that the socialization literature implies or assumes a unidirectional influence of parent on child. He suggests, and Clarke-Stewart demonstrates, that the young are themselves a source of stimuli which control caretaker behavior at least to some degree. In his recent research on mother-infant interaction, Lewis (1971) developed a scheme very similar in direction to the one we are seeking to construct. He emphasized the notion of contingency, maintaining that it is important not only because it shapes the acquisition of specific behaviors, but because it enables the child to develop a motive, which is the basis for all future learning. The main characteristic of this motive is the child's belief that his actions affect the environment. In this regard, the mother is important because it is the contingency between the infant's behavior and her responses that enables him to learn that his behavior does have consequences.

In his research on response decrement,--the frequency of toy change in experimental situations--Lewis found that these measures were related to the socioeconomic status of the infant's family. Infants of high SES parents showed rapid response decrement and frequent toy change, while the reverse was true for low SES subjects. He found a positive and significant correlation between IQ at three-and-one-half years and rate of response decrement at one year, indicating that greater response decrement at one year was associated with higher IQ at three-and-one-half years.

The mother's touching, looking, holding, and smiling were positively correlated with response decrement, which was in turn negatively correlated with the amount of time she spent reading during the experiment. This suggest that the more stimulation a mother provides, the greater

the decrement to the repeated signal.

Lewis uses the term "generalized expectancy" to characterize his own work, as well as to characterize much of the clinical work, such as Provence and Lipton's (1962) studies of institutionalized infants. Lewis feels that generalized expectancy is a belief generalized over many situations that the individual's behavior will or will not be effective in producing the desired reinforcement. The relationship between belief and internal control and perceptual-cognitive achievement behaviors is well documented. Crandall, Katkovsky, and Preston (1962) found that intelligence scores and achievement scores were significantly related to internal control belief. Crandall (1) recently found a significant relationship between internality and performance on the Witkin Embedded Figures Test. Studies with children and adults all point to the position that the belief in control or, conversely, the belief in helplessness in affecting one's environment, is an important motive in subsequent perceptual-cognitive ability. Seligman's (1968) work on helplessness in dogs, and Vance's (1973) paper on learned disability, are supportive to this position.

Lewis then advances a generalized expectancy motivational model which he says the infant develops through the mother-infant interaction. The learning of this motive is dependent upon consistent reinforcement with short latencies--that is, before the memory trace of the infant's act is gone. The plan or expectation built by the infant is produced in this manner: uncomfortable sensation leads to action which leads to cessation of sensation. In other words, his prior behavior was effective in relieving pain. While the institutional infant may receive equal amounts of stimulation, these are non-contingent on his actions, and thus the principle of affecting his environment by action is not

learned well or is delayed.

Moss (1967) suggests that the mother's behavior is controlled by the S-R conditions provided by the infant, and that she acquires reinforcement value if she responds contingently. Moss views this point where the infant's control of the mother declines and the mother's reinforcement value emerges as the initial condition for social learning. The belief in control which emerges as a consequence of early contingency experience mediates between stimulus and response experiences. The mother would appear to have two functions initially: (a) to serve as the contingency producer--the creator of expectancy -- and (b) to provide an environment which facilitates the infant's self-reinforcement--toys which can be reached for and touched, etc. The contingency relationship has been argued to be effective in producing a generalized expectancy of control or helplessness. Yet to be answered is how this learned expectation can affect perceptual-cognitive development and, specifically, response decrement to a redundant signal. The answer seems to be multiple. First, the lack of this expectation reduces the infant's exploration of his environment; that is, if he cannot affect change or outcome, why pay attention to it? This lack of interest should prevent the infant from exploring his environment and enriching his set of experiences, expectations, and schemata. Further it is suggested that sensory processing not only involves orientation toward stimulation or exploring the environment, but a desire (an active process) to assimilate the information. In a visual exploration, this might be seen as the difference between an empty stare versus taking in and processing--accompanied by cardiac deceleration. In both cases, the infant orients, but only in the latter is information absorbed. There is evidence available, other than that presented

above that the mother-infant interaction can affect a desire for novelty and familiarity (Rubenstein, 1967). Moreover, Watson's (1971) observation that contingency training increases attentive behavior and responses other than those reinforced is particularly relevant. Alternatively, without this expectancy the infant is unlikely to rehearse developing skills and structures as they unfold in their developmental sequences. Thus, new skills are lost and emergent functions do not occur. Finally, Schaeffer and Emerson (1966) have argued that external stimulation levels can be considered to affect arousal level or alertness which in turn will affect attention toward environmental changes or inconsistencies. While the exact nature of this generalized expectancy or response decrement is yet unclear, it is thought that infants with a relatively weaker expectancy should have less motive to process signals and take longer to build models to explain their experiences.

In conclusion, then, what Lewis has proposed is that the reinforcement of specific S-R bonds by the mother is effective in increasing the occurence of that particular reinforced behavior, but more important, it develops within the infant the expectancy that his behavior can affect his environment. Given this expectancy, the infant is motivated to produce and utilize behaviors and skills not reinforced in his past experience. Thus, this motive can be thought to mediate the occurrence of new behavioral responses.

Crenshaw and Blum (1971) in a study of chaotic reinforcement, demonstrated the power of expectancies learned from parents and the effects of chaotic reinforcements on children who have developed stable expectancies. The introduction of a random reinforcement procedure produced typically low socioeconomic behavior

in high socioeconomic level subjects. The number of errors and the trials to criterion reveal that high SES subjects' performance progressively approached and ultimately equalled the low SES performance. The task was a standard concept acquisition task in which the first 12 trials were randomly reinforced, after which consistent reinforcement began with no warning to subjects. For some subjects change was always reinforced while for other subjects there was random reinforcement for 0 or 12 trials. All subjects were run for at least 42 trials to a criterion of 12 correct responses.

Combining all trials, high SES children made fewer erros than low SES children, but errors increased with the increase in the number of random reinforcements. Interaction between social class and the number of random reinforcements was significant when the 12 and 0 trial groups were combined vs. the zero trial groups. With 0 or 12 random reinforcements, high SES subjects performed more like low SES subjects.

Schaefer (1972), reviewing research on parents as educators, in programs for disadvantaged children, quotes Ainsworth as suggesting a distinction be made in discussions of emotional deprivation from three sources: (a) insufficiency of interactions (implicit in deprivation); (b) the distorted character of the interaction without respect to quantity, and (c) discontinuity of relationships brought about through separation. Schaefer also refers to the findings of Terman and Merrill (1937), and Hindley (1955), which suggest that relatively stable differences in mean mental test scores between socioeconomic groups have emerged by the second and third year of life. He calls attention to the Skeels and Harms (1948) study of children in good adoptive homes whose natural parents were either

mentally retarded or of very low socioeconomic status. The adopted children of retarded mothers achieved a mean IQ of 105.5; children whose natural fathers were laborers a mean of 110.3, and children with both laborer fathers and mentally retarded mothers a mean IQ of 104.1. Mental retardation in the children with "known inferior histories," who were placed in adoptive homes in infancy, was not greater than that of a random sample of the population, and the frequency of superior intelligence was somewhat greater than would be expected. Skodak and Skeelis (1949) also reported a 20-point difference between adopted children and their natural mothers, with a maternal mean of 85 and a child mean of 105. These data suggest that a radical change in environment can produce a major change in intellectual functioning between generations.

Tyler (1965) reported that changes in IQ for 140 children tested yearly from ages three through ten indicated that most gains in IQ were reported for boys rather than girls, and that gains were associated with family educational background and with active personality characteristics such as independence, initiative, and aggressiveness.

Schaefer (1972) reviewed a number of studies of parenting in relationship to IQ and achievement. Many of these have to do with traditional childrearing variables such as warmth, demandingness, expectancy, etc. He indicates that the findings are consistent, but their interpretation is unclear. While a wide variety of "good" parenting behaviors lead to higher IQ's and achievement, like the studies of cognitive style, one finds differences in so many precursor variables that it is difficult to link the pattern of differences with a clear underlying psychological construct. The other problem is the nature of measurement in parent studies, i.e., do interviews, questionnaires, etc. yield valid

. . . significance of level of parental interest and number of these other factors similar family behavior of middle class children at school. Social class differences are shown in scores of significant correlations between the measures of social behavior, child's interest in child's school progress, and academic performance as rated by child's low school, but not significant for the child's social behavior ratings.

For correlations for socio-economic level of family, the variables in child's test scores for correlations with variables in terms of parental interest and variables in quality of the schools. It is found also that the correlations (Table) between intellectual scores (Table) concerned materials where from visits. [illegible] influence scores only slightly lower [illegible]

to the child's early intelligence test scores, the relations with reading quotient at seven years, and IQ at eight years were substantial.

Findings in the Werner, Bierman, and French (1971) study of children in Hawaii indicated that children's learning, achievement, and emotional problems were more related to indices of family environment than to socio-economic status. These finds were similar to those of the two English studies cited above. The authors also concluded that "ten times more children have problems attributed to the effects of a poor environment than to the effects of serious perinatal stress." Relations between perinatal stress and the child's competence decreased with age, but relations of environmental factors and competence increased with age. At 20 months only a 4-point difference in IQ was found between children from the least and most favored environments. At 10-years-of-age, a 20-point difference was found between children who received the least and the most educational stimulation.

Hess (1969) reports, among the variables related significantly to reading readiness, reading achievement, and teacher grades, were availability and use of home educational resources, the mother's personal optimism, and the number of out-of-home activities. Maternal behaviors in teaching the child the use of an etch-a-sketch that were related to later achievement included the number of models shown to the child, number of specific "turning" directions, orientation to the task, praise and encouragement, and specificity of maternal feedback. Maternal language scores and indices of affection-support toward the child, warmth in block-sorting tasks, affectionateness in teaching tasks, also predicted later school achievement. Apparently the mother's teaching

behavior, the experiences she provides, and the model she sets for the child are important influences.

Klaus and Gray (1968) concluded that the evidence is overwhelming in indicating that ". . . performance results from the continual interaction of the organism with its environment. Intervention programs may be expected to make some relatively lasting changes, but cannot be expected to carry the whole burden of providing adequate schooling."

Home Intervention Programs

Schaefer's review of home intervention programs, as well as the Huron Institute's review, indicate that they have quite considerable and often sustained effects on mental development. In our view, the importance of these demonstrations for the understanding of the socialization of learning styles is perhaps even more important than the demonstrations of improved IQ. What many of these programs accomplish is an increase in the mother's sense of role satisfaction by (a) adding to her repertoire of effective behaviors for eliciting positive reactions from her child, and (b) by providing her with a model in the form of the home visitor, who demonstrates techniques and expresses pleasure in the mother's and child's accomplishments. The visitor demonstrates to the mother some new and emotionally satisfying ways of interacting with her child which do not violate the cultural prohibitions which she consciously or unconsciously teaches him. We have little sense of the reasons why home interventions appear effective, but the benefits to both mothers and children suggest that home programs touch a responsive chord. More important than what they teach, home programs may offer the opportunity to foster broad and flexible learning

styles by offering parents a "menu" of activities and ways of interacting with children which foster development without violating taboos. Maternal anxiety appears to be reduced and competence enhanced when a home visitor offers emotional support, new ideas, and information about how children grow.

Biological Bases for Individual Differences

Any approach to an understanding of learning styles requires attention to the biological bases of behavior. A brief review of the evidence for the biological foundations of behavioral predispositions is presented here to suggest the complexity which surrounds the biology versus experience debate. It seems to us that while both contribute to behavior, questions need to be phrased in terms of relative contributions of biology and experience to various aspects of a child's development.

According to Thomas, Chess, Birch, Herzig, and Korn (1963), major influences in early individuality derive from four sources: genetic-familial, prenatal (nutrition, infection, trauma to mother, etc.), paranatal, and experiences during the first two months of life. Combinations of these four are probably more powerful than any one alone. Determining the proportion of each source of influence which would explain a given child's behavior (or behaviors of certain groups of children) is a major, unsolved problem. Behavior which is affected by genetic, prenatal, paranatal, or experiential events leaves us with a tangle of influences which are difficult to unwind.

Thomas et al. (1963) found that the reactive characteristics of the child, more than the attitude of the mother, determined the course of many developmental events. For example, babies with predominantly positive reaction patterns, easy adaptability, and easy distractability were readily toilet trained. However, they were simultaneously in danger of becoming inhibited and submissive if parental authority was exercised rigidly and involved excessive pressure. At the other extreme were the babies with

predominently negative responses to new stimuli and the tendency to be non-adaptive and non-distractable. Training was difficult to achieve in such children and marked rigidity of parental approach tended to produce negativistic reactions in them. The investigators indicated that there was no clear evidence that one source of influence on individual differences was more powerful than another, although one twins study supported the view that individuality may have a strong genetic basis (Rutter, Korn, & Birch, 1965).

Escalona and Heider (1959) report that, while not a single behavior remains the same over time, there is an inherent continuity of behavioral style and pattern of adaptation as the child grows to adulthood. These authors summarizing some of the controversies about activity level, indicate that characteristics such as restlessness or the capacity to remain quiet are more stable characteristics than amount of activity as such. Variability in bodily activity also remains stable. These authors have been better able to forecast how a child will go about moving, thinking, speaking, or playing (the form of behavior) than what he is likely to do, think, say, or play (the content of behavior). Predictions of intensity of activity were only moderately successful as were predictions of affect (complexity, intensity), decisiveness, goal striving, and expressive behavior (all of which include intensity). Yet it seems to them that an understanding of individual differences in personality will ultimately be found in whatever organizing principles underly a given style of behavior.

Escalona and Heider are among the group of investigators who have been impressed with the potential importance of variability in perceptual

threshholds for personality development.

> It seemed probable to us that marked sensitivity, or marked lack of sensitivity, implied significantly different patterns of functioning with respect to social interaction, awareness of the environment, modes of tension discharge, and in fact with respect to the entire course of early ego development. . . . It seemed a plausible working hypothesis that sensory threshholds of at least low medium level are a necessary condition for outstanding or conspicuously adequate development . . . as well as for development of the creative intelligence.
>
> An exceptionally high level of perceptual sensitivity in infancy . . . may also make a child more vulnerable to potertially traumatic experience than he would otherwise be, and thus prove an obstacle to the development of integrated ego functioning . . . . Markedly sensitive infants are more easily and more thoroughly excited by ordinary stimulation than are other babies. (p. 76)

Expressive behavior was the most easily predicted of the four areas which Escalona and Heider thought of as partially determined by sensory threshholds. Infants with low sensory threshholds were commonly also infants whose expressive behavior was relatively "more sensitive." Is it possible that low sensory threshholds permit the development of more extended attention to human interactions and less distractability from other kinds of sensory stimuli? Levels of perceptual excitability seem to intersect with the family atmosphere to influence tension discharge mechanisms, as well as physical and other behaviors.

> Patterns of tension discharge have impressed us as primarily a function of the kind of mothering a baby received, although infants also seem to differ in the degree to which they can help themselves if maternal figures fail to provide relief and comfort when needed.

The complex relationships between biological/temperamental predispositions and caretaker influences are highlighted in a discussion of the relative success in predicting some outcome bahaviors but not others. The behavioral expression of biological predispositions can be markedly skewed via the

development of defense mechanisms, presumably as the child learns to conform to his caretaker's expectations and the vagaries of the environment in which he lives. Some characteristics, such as interests, sex role behaviors, and the like were better predicted from a knowledge of the parents than from the child's early temperamental history. While Escalona and Heider do not suggest definitive lines of prediction based on biological versus environmental influences, their work offers much documentation to substantiate the complex web of influences which must be considered in attributing any behavior or class of behaviors to particular precursors.

The extent to which this study emphasizes the importance of perceptual sensitivity and activity level provides us with some basis for understanding the importance of perceptual selection and the definition of an action space through socialization. If perceptual sensitivity and activity level--both biological-temperamental variables--are such strong influences on individual differences in children's later functioning, that fact might explain the susceptibility of perception and action to shaping by socialization. This may be why the impact of social influences on perception and on action have such extensive ramifications for personality and for learning.

> Infant behavior permits an assessment of relative sensitivity, or at least level of responsiveness, to perceptual stimuli. It was suggested that moderately low perceptual threshholds are a necessary (but not a sufficient) condition for the optimal or maximal development of certain personality functions, notably a rich fantasy and imaginative life. Relative insensitivity to perceptual stimuli and relatively meager development of fantasy were seldom erroneously predicted. The entire group of predictions concerning sensory reactions (with the exception of different sensitivity in various modalities) was reasonably successful. This suggests the possibility that infants who are relatively sensitive to perceptual stimuli may possess the potential for a strongly developed imaginative life, and for

> subtle discriminatory reactions in some other spheres, but that the development of defense mechanisms may substantially alter response threshholds as well as the extent and quality of fantasy life. Experience, and personality organization in response to experience, would presumably have no power to supply a potential previously lacking, however. Those characteristics predicted well and badly tended to relate less to the predictability of the child than to the predictability of environmental influences to which he will be exposed. In the case of sex role acceptance, patterns of interests, resolving the Oedipal conflict, etc., I depended upon knowledge of the social milieu and where the predictor was well acquainted with the social milieu the predictions were firm. Behavioral manifestations referring to the child's relationship with his mother and family, his response to frustration, and his attitude toward rules and authority were poorly predicted, depending probably more on specific personality characteristics of the parent and their childrearing techniques which were not well known to the predictor. (p. 85)

The impact of experience is usually to curtail the development of biological potential rather than to develop potential which was observed to be low at the outset.

> . . . our findings tend to support the hypothesis that both activity level and sensory threshholds in infancy play a predisposing role in the development of some later patterns of psychological functioning. Our results in relation to this problem are numerically trivial. However, the circumstance that the infrequent reversals of predicted patterns occurred only when the maximal development of the potential had been predicted, and never when the potential was thought to be lacking, appears to us of intrinsic importance. For this reason we infer that the concept of potential or predisposition as reflected by overt behavior in infancy merits further and more systematic application in empirical studies of child development. (pp. 239-240)

Consistent with our observations of children on Chicago's West Side, Escalona and Heider reported that children whose development does not proceed smoothly often retain specific behaviors from infancy. In the normal course of development, earlier patterns and schemata disappear as the child reintegrates at a higher level of maturity, but some developmental disturbances limit the degree to which successive patterns of behavior will be integrated. In their play, our developmentally immature preschoolers

exhibited many themes and forms characteristic of early infancy, i.e., the oral period. Such themes and forms tended to occur less frequently in the play of their better functioning age-mates, and more often were integrated into the forms and themes of play typically manifested among four-year-olds. (Hirsch, Borowitz, and Costello, 1970)

An extensive longitudinal study of Hawaiian children's development reported by Werner, Bierman and French (1971) followed children from before birth through the middle school years. They found that learning or emotional problems were attributable to stresses and inadequacies in the environment ten times as often as they could be traced to serious prenatal or postnatal stress. This was an especially striking finding since medical care was controlled for all social class groups, and therefore allowed for separation of medical care from general home care.

We conclude that while biological endowment is an important factor in children's activity modulation and perceptual sensitivity, and likely approach to learning, the evidence for significant environmental shaping of the child's development remains convincing. While respecting the developmental predispositions which are the biological bases for individual differences, we think it important to recognize that considerable variability in behavior and personality derive from a child's unique encounter with his caretakers, his community, his culture, and the chance patterns of events which occur as he grows up. To understand learning styles, we must respect the power of both biological endowment and experience in living.

Psychological Bases for Individual Differences in Cognitive Styles

Cognitive Styles--Which is Better? Best?

A number of researchers have developed essentially two-dimensional frameworks of either personality or cognitive style. Many of these two-dimensional schemes seem to have an underlying relationship to the individual's definition (selection) of the perceptual stimulus, and his range of action possibilities. It is of considerable interest that many of these studies seem to differentiate the same subjects into two classes, however they may be labeled. Two-dimensional studies appear to be characteristic of both European and American studies of personality and cognitive style, which raises questions about the nature of dimensional studies in a class structured society (taking a sociological and economic perspective) or alternately in a society whose intellectual debt to

Aristotle leads to sequences of binary alternatives. It would be of considerable interest to look at how other cultures' study of the phenomenon of individual differences, and to ask to what extent Western psychology is bounded by the social experience of investigators who think of many psychological phenomena, particularly those in the range of personality functioning, as falling into two classes or, at best, three. In many studies of personal or cognitive style, it appears there are two "pure" types and a "mixed" middle type.

These typologies, in addition to being two-dimensional, usually imply that one style of approach rather than the other is particularly virtuous (effective, productive, etc.). Much like the American, if not European approach to life, the typologies of personal and cognitive style discriminate one kind of person from another, and demonstrate the superiority of one of those types for accomplishing life's most important functions. When tracing etiologies of behavioral types, we come to the "good" parenting conception, and in applications we find an emphasis on interventions to "teach" the preferred behavioral style.

Looking for the value dimension in behavioral style reflects concerns of this writer which may be overdrawn. We are interested in learning which factors "make a difference" in the life outcomes of children, and what sorts of interventions increase the chances of positive outcomes. Few in preschool or day care work are unaware of the value judgments implicit in program design. In programming for young children, most of us brew a mixture of limited research knowledge and some theoretical conceptions with "mother wit" about "what is good for children." This process reveals all too clearly that, apart from the ephemeral "social class" biases of program designers, programs for children are based on implicit notions about what is "good" for people in this society.

It is against this kind of rumination that I began to read the individual differences literature, and especially the behavioral style and cognitive style literature, with renewed interest in the unspoken value assumptions which underlie much work in this field. Perhaps I take for granted that, as social animals, psychologists are likely to be influenced by their social norms. In a society which is based on a concept of social classes, it becomes conceivable that we would arrive at a few dimensions of behavior and that one be "superior." That we have succeeded in demonstrating social class differences in many cognitive styles, and that the lower class groups always come out "inferior." cannot be accidental, even if it is not planned. Understanding psychological research findings in light of cultural history is a loaded challenge. On the other hand, the consistency of differences between cultures and the consistency of between-class differences (as with between-sex differences) within cultures cries out for some sort of taming, if not understanding.

Individual Differences--a Research Cycle

The historical roots of individual differences research is fascinating. The relationship between psychological methodology and findings on the one hand, and common cultural assumptions about the nature of "good functioning" (right living?) in Western society on the other, warns us of the essential flaw in "objective" social science. In her chapter summary on individual differences in cognitive style, Tyler (1965) indicates that while the measurement of individual differences and perceptual characteristics began before the beginning of the 20th century, it was lost when simple perceptual measurements proved not to be indicators of general intelligence, as then defined. Rising interest in

correlates of intelligence led to studies which would be relevant to intellectual development and the structure of intellect have left many still unanswered questions about the nature of intelligence. Educational interventions which promised to raise intelligence have been disappointing and the experiential deprivation conceptions on which they were based now sound naively incomplete. A greater concern with individual differences, their nature, and their origins may be one result of these trends or merely this writer's fantasy that her thoughts are historically propitious. In early 1970, we have a rather broad range of descriptive studies of child development and a better handle on the phenomenal nature of cognitive development. We may now be in a better position to pursue studies of individual differences with greater vigor as well as greater rigor.

Witkin's psychological differentiation research

The most extensive body of research on perception as related to personal functioning and learning style has come from Witkin's laboratory over the last twenty years. For this reason, his work is reviewed in some detail. Witkin (1954, 1962) was originally interested in the relationship between personality functioning and perceptual organization. He intended to measure significant aspects of perceptual functioning in relation to individual differences, developmental changes, self-stability, self-consistency over time, and psychopathology. Use of four experimental measures* with a variety of subjects led him to conclude that the perceptual dimension he was measuring was an ability to overcome an embedding context (field-independence), rather than perceptual accuracy or body sensitivity. His measures have been administered to children (8 years and older), adult men and women, geriatric groups, psychotic patients, alcoholics, etc., under varying conditions of stress. For all groups, scores on the tests have enough variability to distinguish between high and low field dependent subjects, and subjects' scores have been consistently high test-retest reliabilities even over long periods of time.

In a longitudinal study, which replicated the findings of a number of cross-sectional studies, children's field independence scores were found to increase up to the age of 17 and remained stable until age 27 (Witkin, 1967).

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*Rod and Frame Test; Tilting Room-Tilting Chair Test (with two subjective sets); and the Embedded Figures Test.

the personality characteristics found to be relevant to the perceptual tasks were divided into three basic areas of functioning: an individual's relation to his environment, the way he manages his impulses, and his experience of himself.

Witkin et al. (1954) found that field dependent people used passive-submissive coping style vis a vis their environment, while field independent people used an active style. The passive style was characterized by an inability to initiate activity or to function without environmental support, and a readiness to submit to authority. The active style was just the opposite: the ability to function with little support, the capacity for initiating and organizing, and the power to struggle for mastery.

Regarding the handling of impulses, they found that field dependent people were often unaware of their inner life, feared aggressive and sexual impulses, and had poor control over these impulses. In addition, evidence of considerable anxiety was found, combined with difficulty in regulating it. Field independent people seemed to have a better understanding of and control over their impulses, in addition to less anxiety. However, in his 1962 book, Witkin denied that either perceptual group was better adjusted, but that statement sounded somewhat hollow against the backdrop of his other writings.

Field dependent people had low self-esteem, difficulty in accepting themselves, and a low evaluation of their bodies. Figure drawings were primarily used to evaluate this relationship and became an important measure of self-image in later studies. In Witkin's later work, many of these findings were replicated, some became an integral part of his theory, and some were forgotten. The activity-passivity dimension was not emphasized in his 1962 book although

more complex clusters of personality factors reported there seem to be related to it.

The differentiation hypothesis. The discovery that children became more field independent as they grew older, led Witkin in his 1954 book to speculate why this occurred. He hypothesized, at that time, that two developmental changes occurred: (a) an increased ability to overcome a passive acceptance mode of perceiving, and (b) an increased ability to overcome field dependence. He cast his perceptual theory into a Wernerian developmental schema.

Witkin stated a basic developmental assumption, i.e. that development proceeds from the global to the differentiated. This progression is expressed in the increased articulation of experience, in a more clearly defined body concept, and in a growing sense of separate identity and is found in all areas of psychological functioning. Since his perceptual tasks reflected the ability to differentiate figure from ground and were related to body concept, etc., Witkin theorized that they tapped an individual's level of developmental differentiation.

He further bolstered his theory by comparing scores on his perceptual tests with IQ scores. He found moderate to high correlations between IQ scores and field dependence tasks for 10-year-olds. However, when individual subtests of the WISC were factor analyzed with the field dependence scores, it was found that three of his perceptual measures were related to the so-called "analytic" subtests of the WISC (Block Design, Picture Completion, and Object Assembly), and were independent of the verbal comprehension factor (Vocabulary, Information, and Comprehension subtests), and, except for the Embedded Figures Test, independent of the attention-concentration factor (Digit Span, Arithmetic, and Coding subtests). Using these data, Witkin concluded that his perceptual tasks

measured an important facet of cognitive functioning, the analytic-global dimension. He concluded that this dimension was the crucial developmental continuum underlying differentiation and progression. The fact that WISC verbal comprehension did not correlate with his perceptual tasks enabled him to dismiss IQ influences in his later studies. Most of his work does not control for IQ. (He does use what he calls his cognitive index which is a person's score on the analytic subtests of the WISC.)

Witkin didn't seem to be bothered by the fact this his developmental theory of increased differentiation, as measured by his tasks, did not include verbal ability. Zigler (1963a, 1963b) astutely pointed out this inconsistency in two reviews of the 1962 book. Coreh (1969), heeding Zigler's cautions, re-investigated the relationship between verbal IQ scores and field dependence in 30 children and their parents, and found a significant correlation between verbal IQ scores and field dependence scores for girls and their mothers, and fathers, but not for boys. Most of Witkin's studies have been done on boys only.

Witkin was not interested in further proving that his field dependence-independence dimension was the perceptual analog to the global-analytic dimension of cognitive style. By demonstrating their correlational relationship, he was content in his later work to assume their equivalence. In fact, he used the terms field independence, analytical approach, and differentiated style interchangeably in his 1962 book. For him, a field independent style indicated a relatively high degree of psychological development, independent of verbal IQ.

Socialization of cognitive style. Having tied his perceptual theory to a cognitive developmental framework, Witkin turned to the question of the origins

of style differences. He used a cross-sectional study of primarily Jewish, middle class boys, ages 11-14. Some were tested at 10 years and again two or three years later. The mother-child relationship was assessed by interviews with the mother and by the child's interview and TAT scores. These measures were then related to the child's perceptual and cognitive scores. The mothers' interviews were divided into the following areas: characteristics of mothers (self-assurance and self-realization in the family and in social relations), the impact of the mother on the interviewer, mother's attitudes toward her child and mother's child-rearing procedures (especially concerning separation and impulse control). In each of these areas, mothers' interactions were characterized as inhibiting differentiation (IID) or fostering differentiation (IFD). Mothers who inhibited differentiation lacked self-assurance, complained of tiredness, of an inability to cope, or of neglect by their husbands. Their complaints showed more concern for themselves than for their children. They were also rated IID if they said they resolved conflicts with their husbands by submitting unwillingly to their demands or if they sought advice about child-rearing but were not satisfied with that advice. Mothers who fostered differentiation described themselves as energetic and as trying to master tasks at home despite difficulties. They respected their husbands and shared satisfactions with them. They felt they could hold viewpoints on child-rearing which conflicted with those of their husbands. When they complained about a lack of help in child-rearing, they showed concern for the child's welfare. In addition, they expressed confidence and satisfaction with their child-rearing role.

Mother's <u>attitudes toward her child</u> were rated inhibiting if she complained about her child, felt her child did not live up to her expectations, or

found her child too demanding or aggressive. An ID rating was also given if approval of her child depended upon his conforming or being affectionate. Differentiation-fostering mothers tended to express approval of their children in areas of achievement, creativity, independence, responsibility, and sensitivity to others. They emphasized the effects of a child's behavior for the child, rather than for the mother. They were concerned if their child was passive.

Mothers' descriptions of their interactions were rated inhibiting if they were possessive, anxious, solicitous, cold, hostile, amused, or both indulgent and hostile. Interactions described as warm, affectionate, and with high involvement/or warm, accepting, and not highly involved/or accepting but not warm were all rated differentiation-fostering. Differentiation-inhibiting mothers tended to baby their children, give them physical care inappropriate for their age, and limit their assumption of responsibilities. Care-taking activities were usually done for the mother's convenience with little concern for the child's growth. They also tried to limit their child's curiosity and stressed conformity. Some IID mothers were inconsistent in their behavior, both babying and alternately expecting adult standards from their children. Interviewers felt these mothers were unable to see their child as separate from themselves.

Child-rearing practices rated differentiation-fostering were: granting of age-appropriate, independence-seeking activities, encouragement of responsibility in the child, confidence in the child's judgments, and encouragement of curiosity. Mothers rated IFD made decisions about separation on the basis of the child's readiness, rather than their own needs. These mothers also tried to

be sensitive to their child's individual needs.

In training their children to control their aggressive behavior, IID mothers were indulgent and submissive/or coercive/or indulgent and coercive/or made irrational threats. IFD mothers tried to communicate clear, definite behavior standards to their children and were consistent about enforcing limitations. They preferred using reasoning and explanation over other methods of control. IFD mothers also permitted more assertiveness in their children.

When mothers' differentiation-inhibiting or fostering ratings on each section were combined, they were highly correlated with the perceptual index scores of their children. That is, mothers fostering differentiation in their children over a range of activities had children who were field independent.

The less differentiated, more field dependent child told parent-child stories in which parents were less supportive than the stories of more differentiated children. The children's interviews did not produce enough information to be effectively compared with the other measures.

Summary of Witkin's Findings Concerning Origins of Cognitive Style Differences.

Mothers of less differentiated boys were less satisfied with their roles, complained about themselves and their families, and resolved conflicts and sought information in ways they felt were unsatisfactory. Resolution of problems was sought primarily for their own comfort, and not in consideration of their child's needs. They tended to stress conformity for themselves and their children. It seemed that these mothers were less able to separate their own needs from their children's needs.

Mothers of more differentiated boys appeared more satisfied with their roles, better able to resolve life's conflicts, and more self-assured. They

tended to express approval of their sons' achievements and tried to be sensitive to their sons' individual needs. Age-appropriate independence activities were encouraged. Field independent children saw their parents as more supportive than their less-differentiated peers.

Speculations about the development of differentiation. Witkin's findings concerning maternal behaviors which foster differentiation in their children led him to speculate on the crucial ingredients in this process. One cluster of behaviors he found were those related to the development of an ability to articulate experience, to separate "me" from "not me." A mother's handling of separation, the strength of her self-esteem, and her responsiveness to the child's needs, even when they conflict with her own, all contribute to the development of a clear self-image in the child. In addition, a child must be exposed to new, independence-seeking experiences at the appropriate time and under appropriate conditions.

Mothers interpret the world to their children. "For mothers who sense dangers as global in content, the means of meeting the dangers may consist of general proscriptions to avoid everything. Since general dangers can be met only by general measures, withdrawal or denial might be the child's preferred choice." Mothers who can articulate dangers enable their children to devise specific, differentiated means of coping. In this way, as in many others, mothers act to structure their children's experience.

Another important cluster concerns the development of controls. The adequate channelization of the child's energies depends upon both the mother and the child. The mother must be able to control her own impulses and to provide clear, consistent behavior standards for the child.

Some questions concerning the study of origins of cognitive style.

Much of Witkin's experimental work since 1952 has sought to replicate the findings discussed above. Although Witkin (1967) reported findings from studies done on other populations, no one study has been reported as exhaustively as the one involving middle class Jewish boys from Brooklyn and their mothers. Therefore, much of his theory rests upon a study with some obvious sampling problems. Witkin's neglect of girls as subjects does limit the generalizability of his findings.

Witkin's discovery of a nonsignificant correlation between boys' TAT stories about the supportiveness of their fathers and the boys' perceptual index, while mother's supportiveness was significantly correlated with perceptual index, corroborated a finding of Corah's (1965). He discovered that boys' measures of differentiation were related to those of their mothers and girls' measures to those of their fathers. These findings suggest that studies of the socialization of cognitive style in girls as well as boys might result in a better understanding of the socialization processes involved.

In addition, Witkin's use of middle class, predominantly Jewish, urban subjects does not take into account social class, ethnic, or regional differences in socialization. Many of the maternal behaviors rated as fostering differentiation are typically those of educated, upper middle class childrearers. Perhaps his mothers of less differentiated children were dissatisfied with their roles and themselves not because of their own cognitive styles, as such, but because their styles were less compatible with those of their friends or families of origin.

Another difficulty in Witkin's scheme is the value-loading of his dimensions. He claims that a person's cognitive style does not influence his emotional

adjustment, however, it is very clear which style Witkin believes is optimal. Throughout his work, one reads that field dependence is associated with immature, undifferentiated, anxiety-filled, unaware, dissatisfied, impulse-ridden behavior. His value judgments become even clearer when he deals with the fact that women consistently score higher in field dependence. He attributes this field dependence in women to their greater immaturity, less demanding adult role, passive sex role, and internal genitalia. One wonders whether, if it is the case that women are socialized to be more field dependent than men; (a fact one cannot readily interpolate from his findings on boys), field dependence has some adaptive value for women. Witkin does not examine this question. However, Ruble and Nakamura (1972), who have been investigating the differences in problem-solving behavior between field dependent and independent children, have suggested that field dependent subjects may be more effective in solving tasks that involve using relevant social cues. Obviously, more work needs to be done in this area.

Further cognitive style research. Several small studies have been done by Witkin's colleagues outside Brooklyn, and with different sample populations. Their findings, as reported in a recent review article by Witkin (1967b), are summarized below.

Seder* replicated many of Witkin's findings using middle class families from mixed religious backgrounds living in the suburbs of Boston. Dershowitz studied two groups of 10-year-old boys from Brooklyn. One group consisted of Orthodox Jews, the other of Anglo-saxon Protestants. The Jewish boys came from predominently mother-dominated homes, where the fathers were psychologically

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*All studies cited by Witkin, 1967b.

absent and where the human body was denigrated. The Protestant boys came from more heterogeneous families, which, however, tended to emphasize doing more than "knowing." He found that the Jewish boys were field dependent and had more global body concepts. Dawson reported findings from a cross-cultural study of adult males from two tribes, the Temne and the Mende, in Sierra Leone, Africa. Using the men's ratings of maternal strictness, he found that the more field dependent tribe, the Temne, rated their mothers as having exercised stricter controls over them when they were children. Similar ratings of strictness of paternal control were in the same direction, but were not significant. He also discovered that boys from father-less homes were more field dependent and that among field independent boys, the fathers tended to be the disciplinarians. When he compared the socialization habits of the tribes, Dawson found that the Temne customs involved severe discipline, strict conformity, adherence to tradition, physical punishment, dominant mothers, little paternal contact, and little encouragement of adult behavior in the children. The Mende customs, on the other hand, emphasized less punishment, a less mother-dominated family life, less adherence to tradition, and more responsibility on the child's part. In addition, the Mende tribe members tended to exhibit more consistent behavior as care-takers. As expected, Temne men were more field dependent.

Berry widened the cognitive style theory with the addition of an "ecology of environment" factor. He studied two cultural groups living in totally different environments: the Eskimo of Baffin Island and the Temne of Sierra Leone. Sierra Leone is a variegated, inherently highly structured environment, while the Baffin Islands are a homogeneous environment. In addition, the Temne are farmers with little need to travel, while the Eskimo are hunters, forced to

travel long distances in the snow and return safely. Berry hypothesized that the Temne who had little need to articulate their environment would be more field dependent than the Eskimo. His hypothesis was confirmed. In fact, he found that Eskimo language contains a complex system of geometrical-spatial terms to facilitate this necessary structuring of space.

In addition, Temne subjects rated their parents as stricter than the Eskimo subjects. Eskimo socialization customs emphasized extreme freedom for the children, self-reliance, individualism, skill, ingenuity, independence, and rare punishment. The Eskimo practices also discouraged class, social, or political stratification. Berry also found that the Eskimos were less influenced than the Temne by standards attributed to an authoritative group. Berry's finding that Eskimos had a more highly differentiated body concept than American children led Witkin to speculate that the level of differentiation necessitated by the environment might generalize to self-concept as well.

Additional studies have also been done concerning sex differences in cognitive style. A general finding has been that greater masculinity within each sex is associated with greater field independence. Impressions from socialization studies seemed to indicate that mothers who stressed achievement and assertiveness for their sons, stressed social training for their daughters. Carden and Iscoe found that boys preferred field independent boys while girls preferred field dependent girls as friends. Only Berry's Eskimo population findings appeared to refute the consistent pattern of sex differences in field dependence.

In an attempt to clarify the conceptual problems of cognitive style, Vernon reviewed factor analytic literature on cognitive function and concluded that, after removing the general factor, that positive residual correlations

always fell into two main groups: verbal-educational and spatial-practical-mechanical. The latter dimension he identified with Witkin's global-articulated dimension of field independence.

In his summary of this review article, Witkin refuted many criticisms of his research, using these recent studies as evidence. He found his perceptual and cognitive tasks to be somewhat culture-bound, but preferable, in cross-cultural studies, to tasks less independent of verbal ability. The fact that his measures showed similar patterns of relationship in non-American groups led him to defend their generalizability.

Other Cognitive Style Research

In The Psychology of Human Differences, Tyler (1965) summarizes and interprets most of the research then available. While most of the research has been done with adults, relationships between personality and perception have been studied by many investigators. The work of Kagan et al. (1963), on analytic styles of conceptualization and later impulsivity-reflectivity (1970), and the work of Witkin (1954, 1962) on field dependence-independence (reviewed above), have generated some of the most intriguing findings for the developmental psychologist to ponder. A number of other typologies reviewed by Tyler include analyzers-synthesizers, objective and subjective perceivers, active and passive perceivers, conceptual and perceptual types, confident and cautious types, disintegrated and integrated personality types, color vs. form reactors, and visual vs. haptic types. After reading these summaries, [illegible] occasional correlations between two systems or typologies, one might ask, Do the behaviors studied reflect the author's preferred dimensions for perceiving and understanding

the world on some singularly important dimension along which individuals may differ?

The Fels Study (Kagan et al., 1958), indicates that children who approach the world actively and independently are likely to grow intellectually at a rate faster than normal, whereas passive, dependent children tend to develop at a slower than normal rate. Kagan, Moss and Sigel (1963) demonstrate the stability of the analytic style of thinking. Non-analytic children were found to be more active and impulsive, and more often had trouble learning to read. People whose styles were analytic were also field independent (Witkin, 1962). According to Tyler (1965) Piaget's demonstration that intelligence develops out of early perceptual schemata is a parallel system since cognitive styles probably facilitate assimilation of new experience into existing schemata.

Tyler also reviews the Menninger studies which related an individual's perceptions to his adaptive capacities, and his ego control system. The Menninger group initially used the term "perceptual attitude" and later broadened to a conception of cognitive control principles, e.g., leveling, sharpening, etc. Holzman and Gardner (1959) of the Menninger group, found that six persons whose Rorschach protocols showed strong tendencies toward the use of repression as a defense were all "levelers." (While all repressors were levelers, not all levelers were repressors.) Their work on cognitive control principles represents a major effort within psychoanalysis to develop an adequate psychology of the functioning ego. Its significance lies in its emphasis on adaptive, coping behavior rather than motivational conflicts and difficulties, emphasizing assets rather than liabilities. Tyler dichotomizes the advantages of an adaptive versus a conflict approach and probably misses the point that

the relationship between perceptual-cognitive style and ego-defense suggests a rather close connection between adaptive, coping, positive kinds of behaviors and the handling of conflicts and difficulties. It is probable that any adequate explanation of learning style will have to include both adaptive and defense behaviors.

The Socialization of Intelligence

In 1969, Fischer published a paper titled, "Intelligence defined as effectiveness of approaches." She suggests that interest in measuring intelligence has superceded attention to the nature of intelligent behavior which she defines as follows: "Intelligence refers to the effectiveness, relative to age peers, of the individual's approaches to situations in which competence is highly regarded by the culture." She goes on to say that a person's approach to a situation, including the situation of intelligence tests, is determined by his frames of reference, or the networks of meaning which the situation holds for him. Her conceptualization of intelligence as effectiveness of approach seems to offer more possibilities for understanding intelligent behavior than positing the existence of an abstract ability or potential, for even if such exists, we do not know its nature or its origins. (That is not to deny the possibility of a genetic basis for intelligent behavior; however, until all children grow up in the same environment, there seems to be little pay-off in overemphasizing the genetic component.)

Many of the IQ tests currently in use measure performance on various skills. They are primarily tests of mental contents--the amount of information one has acquired. It is probably correct to say that as they are commonly used,

tests evaluate *what* one knows, rather than *how* one knows. If we are indeed interested in understanding an organism's capacity to learn from his environment and to adapt successfully to it, it seems that *how* he knows--his approaches to a situation--is a more important indicator for future learning than *what* he knows. From *what* a child knows we may be able to guess the kinds of questions he can ask of his environment, but if we have no idea of his behavioral style, we cannot know *whether* he will ask these questions or under what conditions he is likely to be most questioning. As IQ tests are commonly used, they do not index the quality of a child's--or an adult's--interaction with his environment: they only assess the results of that interaction.

We would take the position with Chein (1945) that intelligence is best conceived of as an adverb, describing behavior, rather than as a noun, for as yet we have no way by which to infer the existence of such a noun. He has written:

> ...we observe certain constancies in the intelligence levels of individuals' behaviors. We abstract his *constancy* and speak of it as an attribute of the individual who manifests it. We must never forget, however, as we so unfortunately tend to do, that all we are entitled to say on the basis of our observation is that, *for reasons unknown*, there is a constancy in the relative intelligence manifested in the behaviors of different individuals;...to speak to the intelligence of the individual is only an abstractive shorthand way of speaking of an observed trend in his behaviors.

Chein offers the following proposal: "activity is intelligent as it occurs with reference to all of the relevant factors in the behavioral situation." He then abstracts the following definition--which refers to behavior in situation, not to generalized ability--"intelligence is the apprehension of the relevant structure of the total behavioral field." The conditions of such behavior are:

> The relevant knowledge acquired in past situations, momentary sets, emotional reactions,...interference effects from conflicting motives, remembrance of what has transpired as the behavioral situation develops, the 'openness' of the situation, and the freedom of the individual to explore the situation on either a conceptual or a manipulative level...

These conditions may vary for an individual from situation to situation.

We observed that preschool children's approaches to new experiences varied in effectiveness as well as in style. The children whose approaches appeared "ineffective" did not always test low on IQ tests. They did, however, have underachieving siblings. What impressed us was the quality of their approach to materials and events, and their interactions with people, all of which could further their cognitive growth. We felt there was no way for this subgroup of children to continue developing intellectually--in terms of conventional assessments--at anything but a depressed rate. We wondered if this group of children might account disproportionately for the decreasing-IQ-over-time phenomenon reported for elementary school disadvantaged children. We hope to test this out next year by measuring our pre-school groups who are now in grades three through six.

Fischer (1969) states,

> ...a man's approaches <u>are</u> the limits of his possibilities, since he can act only in accordance with the meaning a situation has for him, (and) the more restricted a testee's available frame of reference, the more severe is his disadvantage in our culture... it is posited that complete knowledge of an individual's approaches can serve to indicate his available frames of reference, and hence which activities are possible for him.

Summary Comment

Evidence for the socialization of cognitive styles is clearly accumulating and converging from both cognitive style and parental child-rearing practices

research. In addition, the evidence from anthropological studies provides support for a relationship between learning styles (or perceptual styles) and culture, as transmitted through child-rearing practices and observational learning. Any particular set of behavioral dimensions, now in the literature, may not do justice to the complex nature of perceptual approaches to the world. But the evidence does suggest a strong underlying thrust towards the development and maintenance of consistent styles which guide new learning and social interaction.

The relationship between biological predispositions and learning styles seems the next important problem to unravel. Given Escalona and Heider's (1959) findings, perceptual sensitivity and activity modulation would seem to be important limiting factors, but the extent to which they interact with socialization influences is virtually unknown.

Cultural Influences on the Development of Learning Styles

The literature of anthropology, sociology, and psychology can be read to suggest parallel influences on the child's development from his family, his local subculture, and his major culture. From the child's point of view, these influences merge, in that they are mediated by a small number of representatives of the larger world. He learns how the world "works" (or he doesn't learn) and where he does (or doesn't) fit--into a family, a community, and a culture. In this process, he constructs a perceptual world and a repertoire of actions which are consistent with the formal and informal interactions he has with the people, events, and objects in his immediate surroundings. While the child may construct a perceptual world primarily under the training regimen practiced by his caretakers, it seems plausible to suggest that he also constructs that world to a great extent through observational learning. If he is born and reared in a setting which has some predictability and cultural coherence, he can learn a great deal about the significance of environmental stimuli and the range of possible, appropriate, and prohibited behaviors simply by watching the same patterns repeat themselves within his visual and auditory fields. While at later ages, we might make a case for vicarious learning through identification with older persons, during infancy and earliest childhood, it would appear that a great many sensory-sensory and perception-action connections are being made (Hebb et al., 1973) which may not be acted upon for a long time (or ever), but which may influence perceptual and action response patterns for the rest of his life.

Hall (1959, 1966) provides considerable evidence that people brought up

in different cultures inhabit different perceptual worlds, which can be observed in their manner of orienting themselves in space, and in their movements from one place to the next.

In describing the effects of cultural experience on sensory and perceptual learning he states:

> People from different cultures not only speak different languages but, what is possibly more important, inhabit different sensory worlds. Selective screening of sensory data admit some things while filtering out others, so that experience as it is perceived through one set of culturally patterned sensory screens is quite different from experience perceived through another. The architectural and urban environments that people create are expressions of this filter-screening process. In fact from these man-altered environments, it is possible to learn how different people use their senses. Experience, therefore, cannot be counted on as a stable point of reference, because it occurs in a setting that has been molded by man. Eskimos illustrate quite well the extent to which the social and ecological aspects of a culture influence the construction of a perceptual world.
>
> The perceptual world of the Eskimo is quite different from our own; an important feature of this difference is the Eskimo's use of his senses to orient himself in space. The apparent sameness of the horizon as billows of snow rise mixed with wind and leave one with little sense of the difference between the sky and land. The Nivilik have reference points which parallel our use of highway markers. By and large these are not actual objects or points, but relationships; relationships between, say, countour, type of snow, wind, salt, air, ice.
>
> The direction in snow and the wind, together with the feel of ice and snow under his feet, provide the cues that enable an Eskimo to travel a hundred or more miles across visually undifferentiated waste. The Nivilik have at least twelve different terms for various winds. They integrate time and space as one thing and live in acoustic, olfactory space rather than visual space.

In a discussion of space in temples in Greece and Rome, Hall points out that man's capacity for seeing himself in relationship to large enclosed spaces was not developed until more recent history.

"People carry around with them internalizations of fixed-feature space learned early in life. It isn't only the Arab who feels depressed unless he has enough space, but many Americans as well." Another example is the Japanese numbering system for houses where the first house built on a street is always number "one", the second is number "two", etc. In America house numbers are sequenced so that nurber one is next to number two, which is next to number three. Even though number five may have been the first built of the five in America will be numbered according to linear sequence. In Japan, it is "logical" to remember "who comes first" and therefore the oldest house is forever number "one." In Japan the social importance of hierarchy and age determines house numbering.

"Examples from the male-female subculture within our own society could provide numerous examples of differential perception. Whether through observational learning, or through specific training and reinforcement, the boy-child learns to attend to, the perceptual world favored by males of his culture. He attends less to the characteristics of the female perceptual world and grows up to relate anecdote such as the following one cited by Hall (1966):

> I may be able to spot arrowheads on the desert, but a refrigerator is a jungle in which I am easily lost. My wife, however, will unerringly point out that the cheese or the leftover roast is hiding right in front of my eyes. Hundreds of such experiences convince me that men and women often inhabit quite different visual worlds. These are differences which cannot be attributed to variations in visual acuity. Men and women simply have learned to use their eyes in very different ways.

Goodman (1976) suggests that the child learns about his culture from his parents via three principles. (a) Information-giving, as in instruction, definition, direction, explanation, etc., (b) Incentive-giving via such positives as praise, encouragement, request, etc., and such negatives as warning, unfavorable judgment, remonstrance, etc.; and (c) Repetition-reminder, either over time or within a given chain or series of incidents. The child components are: (a) Compliance/non-compliance, (b) ego involvement or action involvement; and (c) echo. Goodman describes interaction chains, most of which are short and informative and may be thought of as the oral transmission of values and other aspects of culture. According to Goodman,

> In all cultures, the concept and knowledge systems of both boys and girls include a world view-- a set of assumptions and beliefs falling in the domains of philosophy and religion. Anthropologists find evidence that these patterns, though they have to do largely with the abstract and intangible, appear in at least rudimentary form in the cultures of early childhood.
>
> Available cross-cultural data show concepts and knowledge related to both the physical world and the social realm. The specific content of these concept and knowledge systems vary widely from culture to culture. So do the patterns affecting the building of these systems in the minds of children--the extent to which adults customarily answer children's questions, for example, or otherwise encourage the universal inclinations of children toward "curiosity-investigatory" behavior and selective attention to what is novel or surprising. Reasoning about perplexing questions appears in very young children, but is predictably more complex in older ones.
>
> Cognitive patterns in a culture of childhood are affected by language and by the foci of interest patterned among adults in a society. Mead (1931) has called attention to the relation between language and children's categories of sense experience, particularly their response to music and their color perceptions. She notes too that some children (Manus, for example) do not ask "why" questions; the culture borne by the adults in their society lacks a focus of interest on origins and causalties. Whatever the foci of the adult society--subsistence techniques, law, dancing, oratory--these salient interests will be reflected in the concept knowledge systems of the society's children in their culture.

There is evidence that a culture of childhood will include at least rudiments of the world view characteristic of the adult society.

Goodman describes two major examples of biocultural mix, in the U.S., which are preserved and maintained by two major types of households, the "stable" and the "disorganized." In these contrasting settings, two major types of childhood culture are likely to be transmitted, the middle class type and the impoverished type, (the "culture of poverty"). While these polarities oversimplify the reality of family lifestyles, there is a tendency to equate middle class with "stable" and impoverished with "di organized"in reports on the life-ways of children. In the slums with which I am familiar, the life styles of children and of adults include both types. Deman and Goodman (1968) also found unmistakable signs of ethnic cultures cross-cutting both middle class and impoverished life ways. Language, dialect, attitudes, and values about paternal authority and interfamilial obligations are a few of the conspicuous elements in which ethnic subcultures differ.

In a modern urban setting, these and other favorable conditions are more likely to be met in the middle class than in the lower class. Lesser et al (1965) compared the cognitive performances of middle and lower class children from four ethnic groups in New York City (Chinese, Jewish, Negro and Puerto Rican). They found that for the four skills assessed (verbal ability, reasoning, number facility and space concepts), each ethnic group demonstrated its own pattern of high and low scores, which was consistent across social class. However, middle class children scored si nificantly higher than lower class children from their own ethnic group.

Pavenstedt (1965) has pointed out that the behavior of lower class children from disorganized home environments differs markedly from behavior of children from

the same ethnic group and social class who come from stable families. Because some available data has suggested a high degree of familial disorganization exists among lower class children, these two conditions of class and organization tend to be viewed as synonymous. The proportion of lower class families who are disorganized may be greater than the proportion of middle class families who are disorganized, but it is disorganization, (or some other intervening variable) not social class, that is important for the developing child.

Disorganization is often associated with fears about surviving, about making it from one day to the next. Under these conditions, children learn to be vigilant, and the anxiety generated by adult uncertainty leaves little room for playful exploration, curious questions, or give-and-take in social interactions. The "cultural" transmission--which occurs under disorganized family life--or in dangerous conditions such as wartime air raids--teaches children an approach to the world which is guarded, self-protective, and hesitant about reaching out for new experiences (with occasional counter-phobic outbursts). In the literature about disadvantaged children, cognitive disorganization is often cited as a deficiency of the childrearing experience. It seemed to us that the problem for poor children who come from disorganized homes (not all do!) is less a matter of not learning to organize experience than it is a matter of learning to live with disorganization and anxiety. An adaptive stance when faced with disorganization is not to organize, but rather to expect unpredictability. If we assume that a child learns to function within his milieu, an appropriate way to function with disorganization is to avoid complicating it further by seeking new experiences. It is adaptive to conserve one's energies and roll with the punches rather than to try organizing and controlling things. This view of learning would explain the

failures of preschool programs which are least successful with children from the most disorganized families. Teaching such children to organize tasks sequentially, to ask questions, etc., does not fit into the way they have learned to approach the world. Perhaps the reason that "highly" structured preschool programs have reported the largest and longest cognitive gains is that they have constructed a highly predictable world for two or more hours each day, which socializes a "world view" of the school-culture as separate from the home-culture. If perceptual organization is a critical component of school learning, a perspective on disorganized home experiences cast in "deficiency" terms suggests a direct teaching prescription, while one cast in terms of a home "culture", suggests two possible but complicated educational responses: (a) an entering into the child's adaptive modes and world-views and gradually expanding these, or (b) construction of a competing school culture which is highly specified along lines consistent with learning a view of the school world as a systematically organized place. The U. S. Bureau of Indian Affairs has operated residential schools, based in a general way on (b) above. The relative ineffectiveness of these BIA schools in teaching a "new school culture" lends further support to our hypothesis that the experiences of infancy and earliest childhood socialize a powerful mode of approach to the world. This "approach" is essentially a style of learning, composed at least of a culturally shaped construction of the perceptual world, and a culturally preferred collection of action responses which are used in active exchanges with the world of people, objects, events, etc.

Caudill (1969) reports a study of 30 Japanese and 30 American first-born infants of middle class urban families. He finds that differences in the infants' patterns of interaction with their mothers correspond to behaviors at three to four months which are different for each culture, yet culturally appropriate. These differences were in line with the culturally preferred patterns of adult social interaction in Japan and America. If, by three to four months of age, Japanese and American infants have learned to behave differently in response to culturally patterned behaviors of their mothers, this is a fact of great practical and theoretical significance. Out of direct awareness of mother or child, the precursors of certain ways of behaving, thinking, and feeling that are characteristic of a given culture become part of an infant's approach to his environment well before the development of language, and hence are not easily accessible to consciousness or change. Sullivan (1953) similarly theorizes that much of a child's approach to people and to the environment is shaped before he ever develops language.

Caron (1973) suggests that for the Navajo child, life on the reservation in Arizona encourages him to develop a wide range of perceptual skills that we do not normally see in children of similar age in urban and other rural settings. For example, he reports that Navajo children can detect people and vehicles at quite some distance and can usually identify them accurately. These descriptions call to mind similar accounts of Eskimo life (Hall, 1966) in which the vocabulary for kinds of snow is accompanied by a quite refined perceptual discrimination among types of snow. While it is probable that environmental events--i.e., the necessity of developing survival skills--encourages the selective development of certain

perceptual skills in some cultures and not in others, the probability is great that these skills are taught directly and indirectly by caretakers rather than developed entirely from personal necessity.

Caron observed that from an early age, parents encouraged children to attend to specific environmental events. One might say that they defined "figure" in relation to "ground" more precisely than would be necessary in a more visually differentiated urban setting, and thus helped children to develop a refined visual-perceptual awareness that non-Navajos lack.

> Calling attention to relevant stimuli begins early and by the time children reach preschool these skills are pretty well developed... Perceptual skills are stressed.... As a result of methods of training (observation and practice) and perhaps as a result of the informational need to perceive visual events accurately across long distances, Navajos tend to utilize minute visual details. For example, in the absence of telephones, the only source of information concerning whether a person is at home or not is visual, if his car is in front of the house, he is probably at home, although at a distance of two miles the car and the house are only tiny specks against the background of mountains. Similarly, individuals could identify an approaching car or person walking down the street at such a distance that a white observer could barely perceive theobject, much less distinguishing characteristics. This skill was present both in adults and in children.

Emphasis on perceptual training also seemed to result in a high level of aesthetic awareness. Caron has noted that Navajo children appreciate beautiful objects and pleasant arrangements of space, and frequently comment on a person's dress or on some object or drawing, saying, "nizhoni'ee!" (It's pretty.)

Children in our Westside preschool, when asked what they saw when they looked out a window, sometimes responded inpuzzling ways. Those children who were functioning least well in the preschool, i.e. attending to the fewest environmental events, commented only on moving objects which they saw through the window. When asked "what else do you see," they mentioned people in motion or occasionally an animal. If the question were asked, "what else" they seldom added anything, or said "nothing". It may be adaptive on the Westside of Chicago to pay close

attention to "action", however, other preschoolers from the same neighborhood described non-moving as well as moving objects, and these were the children who were learning in the preschool. Those who "saw" more things when they looked out, had parents who talked with them about what they saw on the way to school, while many parents of the non-seers, pointed out only what to avoid, what might be dangerous. The latter parents tended to speak in commanding tones, not just for the sake of conversation with their children.. It was our sense that verbal exchange, while not itself the limiting factor in calling children's attention to the world of objects and events, was certainly the most common way in which parents taught their children what was worth paying attention to. In this respect, we felt that verbal exchange influenced development of the perceptual world as much as it influenced the child's development of language skills. Words are a medium for teaching children what is perceivable and act-on-able, at least as much as it is a medium for teaching about ideas, feelings, etc.

Cole (1973), Cole and Bruner (1971) and Cole, Gay, Glick and Sharp (1971) discuss work conducted by Cole and his colleagues among the Kpelle in Africa. They distinguish between cognitive "capacities" and the situations in which those capacities are reflected in skills. Social situations in which certain skills are called for often provided the investigators with better evidence for cognitive operations than their Western-designed experimental tasks. A review of Piagetian research in cross-cultural perspective (Freedberg, 1972) similarly points out that the socialization process is everywhere apparent in the manifestations of cognitive functioning. Piagetian stages and operations cannot be considered functionally equivalent across cultures, since even if they do in fact refer to linear, invariant sequences of cognitive development, they cannot be understood except in the cultural context within which they are observed. What becomes

assimilated by people in a given culture is most likely a function of the perceptual world defined by that culture. The choice of action strategies in problem-solving or social situations will in turn be a function of the prescriptions, prohibitions, and actions spaces socialized by that culture. Thus, certain stages in cognitive development may not be encompassed by a culture's structures. While possible, this argument is difficult to support. Cole demonstrates well that a culture does prescribe arenas in which certain perceptual, cognitive, or action skills will be used. Less clear, tho plausible, is that a culture, like a family, prohibits the use of certain high level perceptual and action skills in taboo areas, prescribing "ignorance" or "naivety" in approaching those areas of experience.

Cole and his colleagues (1971) noted among Kpelle children that they learn adult activites by inclusion in those activities, rather than by tutelage in a "school". Non-educated Kpelle apply their skills in narrower areas than do their schooled peers, which restricts the number of situations in which one can observe their attainments. Cole and Bruner (1971) suggest that differences in cognitive and linguistic functioning observed in the USA may reflect these same situational factors. Some situations "call forth" certain behaviors or ways of approaching events, but the analysis might be extended beyond the realm of action - what is done and where - to one of information gathering styles. If subjects go about collecting information in prescribed ways, we can only ask how much they may miss. Our preschool children seemed to learn most in the preschool setting if they were reasonably free to look, to hear and to act upon the environment - to gather and use information without excessive constraints. Since in all cultures, we observe a wide range of skills and approaches to gathering information, we must ask about the trade offs between cultural integrity and developmental constraint. It is proably romantic to suggest that all modes of information gathering which one observes in a given group of children are equally useful to the child, or

central to his cultural identity. It has never made sense to this writer that 20 - 30 percent of preschool children on the West-side should be doomed to failure in a society in which their peers seems to be able to cope. Highly restricted modes of gathering information appear to have limited their chances for finding a place in the larger society, but more important, they are not finding their way into the local community either. This writer is concered with the socialization of individual differences in information gathering, but also with making some judgment about which styles of information gathering close doors to further development. It seems necessary to separate, at least at the level of analysis and research design, those cultural differences which preserve diversity in our culture, and those differences in learning style, which limit individual development, and may have nothing at all to do with preserving cultural diversity or ethnic identity.

From yet another perspective on cultural differences in perception and action, Sennett and Cobb (1972), in the Hidden Injuries of Social Class, describe a workman's activities and note that his own description of himself was given in the third person, passive voice as if he were talking about someone else. ("The work got done", "It got fixed.") Perceiving one's role in the social system as someone's worker, rather than one's own master, may lead to perceiving one's own actions in terms which comply with this social standing. To take personal credit for - to accept ownership of - one's labor, may imply greater power than a workman really has. Does the workman's child learn from his father's or mother's detached descriptions of work as something which they do not own, that one's actions do not necessarily belong to oneself? Does the child learn to perceive his own actions as remote from himself? Does he learn to see actions as isolated from perceptions, or does he merely learn to interpose distance when he describes

these activities to people outside his family or social class community, lest he appear presumptuous in claiming to own his own actions? Sennett and Cobb's conversations with workers parallel my personal experience with workers' conversations about their friends. It is not possible when listening to a shop factory worker - of foreman- to know whether he is describing his own work or someone else's unless he is asked specifically. Accepting ownership of perceptions, ideas and actions is something which lower class children may be taught to disavow, in some complex way.

In considering cultural transmission of values which arise from the economic situation of the caretakers of children, one does first to ask if such a thing occurs, and if so, how. The industrial worker, no matter what values he brings to his work role, learns to be a cog in a wheel. He learns that his labor - and perhaps his person - are owned in some basic way by those who pay him and who organize the corporation of which his workplace is part. He may not even know the owner. It is difficult to know what kind of cultural he transmits to his children. Certainly, he transmits values other than those which define his labor-force participation, but it does seem reasonable that the world-view he holds on a day-to-day basis will reflect his role in the economy as much as his role in a traditional system of cultural values. In other words, the values he has to live with on the job may be as important for his children's learning as those he brings from his cultural, ethnic or religious and family traditions. The extent to which Americans have come to share common characteristics may be ways of approaching life which are less a function of the social melting pot, than of the "melting" pot of a highly industrialized economy to which people of all cultural traditions must relate in comparable ways.

An understanding of the cultural values - including economic values learned by parents on-the-job - which influence the development of a child's perceptual world may help us to understand his way of learning from the world. We need to

understand the perceptual world children inhabit in order to make some judgement about the perceptual worlds they need to visit if they are to make full use of their possibilities for development. How a culture lives inside a child is the next question. Ways in which children's perceptions and actions may be socialized by his family and his culture are formulated by Talcott Parsons in a model which draws a parallel between the socialization of moral behavior, and the socialization of more neutral approaches to learning about and appreciating the world.

Internalization of Cultural Symbols

Parsons (1970) deals with perception, personality, and action in a variety of contexts. He suggests that one must consider (a) the cognitive perception and conceptualization of the object (or other) in terms of what the object is for that person; (b) the emotional meaning of the object--whether one is attached to it or considers it aversive: and (c) an evaluative integration of the two in which the person orients himself to the object in terms of its cognitive-perceptual and emotional meanings, an evaluation response which remains reasonably stable over time. Parsons insists that no stable relationship among people, or persons and objects, is possible without these three modes of orientation. He suggests that, on the human level, a commonculture--consisting of commonly shared symbols--mediates and helps stabilize these relationships. No matter what the origin of a symbol system in a culture, it comes into play in the socialization of children in families as well as in other situations where children live and grow. He writes;

> It may be presumed that the prominence of common symbol systems is both a consequence and a condition of the extreme plasticity and sensitivity of the human organism, which in turn are essential conditions of its capacity to learn and concomitantly, to mislearn. These features of the human organism introduce potential instability into the process of human interaction, which require stabilizing mechanisms if the interactive system, as a system, is to function. . . . moral standards constitute, as a focus of the evaluative aspect of common culture, the core of the stabilizing mechanisms of the system of social interaction. These mechanisms function, moreover, to stabilize not only attitudes--that is, emotional meanings of persons to each other--but also categorizations--the cognitive definitions of what persons are in a socially significant sense.

Parsons considers it an inescapable conclusion that not only moral standards, but all components of common culture become internalized as part

of the personality structure.

> Neither what the human object is, in the most significant respects, nor what it means emotionally, can be understood as given independently of the nature of the interactive process itself, and the significance of moral norms themselves very largely relates to this fact.

Internalization, in Parsons' terms, goes beyond Freud's use of it as a process describing the development of a superego. Sullivan (1953) and Schafer (1968, 1973) provide further theoretical development of the internalization concept as it relates personality to day-to-day functioning in the world of perceptions, cognitions, social interactions, etc. These views are discussed below in relation to the emergence of characteristic styles of seeking, gathering, and organizing information.

In criticizing Freud, Parsons suggests,

> . . . that Freud apparently did not appreciate the presence and significance of a common culture of expressive-affective symbolism--and the consequent necessity for thinking of the emotional component of interaction as mediated by this aspect of common culture. The structure of his theoretical scheme prevented him from seeing the possibilities for extending the same fundamental analysis from the internalization of moral standards--which he applied to the superego--to the internalization of the cognitive frame of reference for interpersonal relations and for the common system of expressive symbolisms.

Parsons contends that the development of the superego is only possible when the child has internalized well developed systems of cognitive referencing and expressive symbolism. Only then can the child understand the cognitive and emotional meanings of the "prescriptions" and "prohibitions" which are laid upon him. The process of internalizing the common culture is the major problem in understanding the child's general approach to the world. Of the three major components of common culture-- the cognitive refer-

ence system, the system of expressive symbols, and the system of moral standards--

> . . . only cultural symbol systems can be internalized. An object can be cathected, cognized, and appraised, but it cannot as such be taken into the personality; the only sense in which the latter terminology is appropriate is in calling attention to the fact that the common culture is indeed part of the personality of the object, but it is only an aspect, not the whole of it. . . . While identification cannot mean coming-to-be the object, it is, as internalization of the common culture, dependent on positive cathexis of the object. Internalization of a culture pattern is not merely knowing it as an object in the external world; it is incorporating it into the actual structure of the personality as such. This means that the culture pattern must be integrated with the affective system of the personality . . . . the child can only acquire complex cultural generalizations through interactions with others who already possess it. Cathexis of an object as a focal aspect of identification is then another name for the development of motivation-- for the internalization of cultural patterns.

During socialization, according to Parsons, the child must develop a system of categorizing objects--including himself--according to a system of moral norms which regulate his relationships. Then, he can gain gratifications associated with cathexis of objects.

Concluding his analysis, Parsons indicates that the internalized content of personality extends beyond the superego--which is taken from identifications with cathected people--to involve components of ego--namely, the systems for categorizing the object world and expressing the categorizations through expressive symbols.

One of the most intriguing aspects of this analysis of internalization in relation to ego functioning is Parsons' contention that organization, an essential element of the ego, does not derive from the reality principle alone

(the real world as a stable entity).

> It would derive from two fundamental sources, the external world as an environment, and the common culture which is acquired from objects of identification. Both are acquired from the outside, but the latter component of ego is, in origin and character, more like the superego than it is like the lessons of experience.

The above analysis does justice to our observations of children in Chicago who manifested some of the same prescriptions and prohibitions associated with moral issues while playing with toys, using words, experimenting, exploring, etc. The ways in which they organized experiences--or didn't organize them--had the same tone of moral imperative which one associates with behavior controlled by social norms.

Parsons concentrates on the action implications of his personality analysis, and less on the implications of culture for perception. It would appear from observation, and from the anthropological literature, that the perceptual world of the individual and his action dispositions are both susceptible to cultural impact. In summing up, Parsons includes cognition, cathexis, and evaluative appraisal in the ego, and indicates that repression can cut across all three. The ego "faces three ways, as it were, and is subject to pressures from all three directions--that is, from the individual's own organism (id), from the external situation, and from the internalized symbol systems of the culture."

Love attachments and learning. According to Parsons (1970),

> The period when the love attachment to the mother is paramount is the period of learning the basic skills of action--walking, which is, in a sense, the foundation of all the motor skills, and talking, which is the foundation of skills in communication. Object choice then is the motivational foundation of that

aspect of socialization in which basic performance patterns are learned. The diffuse attachment to the object of cathexis (mother) is the basis for the motivational meaning of the more specific rewards for specific performances.

. . . Now in speaking of the process of achievement learning, I refer to the diffuse love attachment as the basis for the primary meaning of particular rewards--and, of course, of ego's own acts of performance in relation to these rewards. This is essentially what I mean by internalization of a valued pattern--that it comes to define meanings for the personality system as such. The first set of meanings is organized about the sanctions applied to the child, the second about a set of performances he has spontaneously tried out and learned successfully to complete.

The concept of object cathexis designates the primary basis on which one type of process of differentiation of personality takes place. The starting point for this process is "internalized mother" established through previous identification. From this base is differentiated an autonomous sub-system of the personality oriented to active manipulation of the object world. The dependency component of the personality then becomes the restructured residue of the internalized mother, which gives a more diffuse and generalised motivational meaning to the specific acts and rewards involved in the exercise of motor and communication skills. On the other hand, the "self" or the ego in a more differentiated sense than at the oral level, is the part which assumes the role of autonomous initiative in the performance process.

The great increases in performance capacity which occur in this pre-Oedipal love attachment period lead to an immense widening of the child's range of contact with the world in which he lives. He is continually engaged in trying out new motor skills and in learning about his world, both by direct observation and by insistent questioning through the newly learned medium of language.

In relation to the infant, the mother played a role which was to a very important degree determined by her other roles--those of wife, of mother of older siblings, of member of the household, as well as her various extrafamilial roles. One may presume that these other involvements appeared mainly, from the point of view of the infant, as restrictions on her exclusive devotion to him. But with his growing mobility and communication, the other persons to whom his mother is related become more and more clearly defined objects. These other persons, typically his father and his siblings--including, perhaps, by now a younger

sibling--form the primary focus of his new structuring of the situation in which he acts and learns.

In his relationship with his mother he has already learned the fundamentals of reciprocal role behavior in a diadic relationship, the simplest type of social system. But the circumstances of this early socialization have stacked the cards in favor of dependency, so the problem of independent training is now, in the pre-Oedipal period, a focal one. The fundamental question is the balance between dependency and autonomy, the ranges within which the child can take independent initiative and those within which he must give way to the wishes and sanctions of his role partner.

With the Oedipal period the child begins to have a plurality of diadic relations--with his mother, father, sister, brother and these, in turn, must be organized into a higher order system, the family as a whole. It is in this context that Freud most prominently raises the problems of the superego and its place in the personality. Just as he treatsidentification with the mother as producing an internalized base from which object choices are made, so he speaks of the superego as providing, for the latency period and later, the internal surrogate of the parental function as it operates in the control of the pre-Oedipal child.
It is my principal thesis that, in the analysis of object relations, there is complete continuity in the basic conceptual framework appropriate to identification in the oral stage, and object choice in the post-oral stage, on the one hand, and the latency period and adolescent socialization, on the other hand. The learning of roles in school and peer group occurs through the mechanism of object choice, motivated by prior identification; but, in the first instance, collectivities rather than persons are clearly the most significant objects.

But throughout the course of personality development, identification, object choice, and internalization are process s of relating the individual to and integrating him into the social system, and through it, the culture. Since these processes are a relational matter, eventually technical analysis has to be applied to both sets of relations, as well as to the relationship itself. Had Freud lived long enough to enter more deeply into the technical analysis of the object systems to which the individual becomes related, he would inevitably have had to become in part a sociologist for the structure of his object systems is--not merely as influenced by--the structure of the society itself. Essentially, Freud's theory of objects relations is a theory of the relation of individual personality to the social system. It is a primary meeting ground of the two disciplines of psychology and sociology.

Parsons' presentation appears to complement the analysis of perceptual and symbol development advanced by Werner and Kaplan (1963), although I've been unable to find any formal attempts to integrate these two theoretical perspectives. In The Social System (1951) Parsons emphasizes the importance of human object ties for developing a symbol system and elaborating an action system. The following excerpts were taken from a chapter on the general theory of action systems in which it is argued that action is the "stuff" out of which both personality systems and social systems are built up.

> Whatever may be the origins and processes of the development of symbol systems, it is quite clear that the high elaboration of human action systems is not possible without relatively stable symbolic systems where meaning is not predominantly contingent on highly particularized situations. The most important single implication of this generalization is the possibility of communication, because the situations of two actors are never identical. And without the capacity to abstract meaning from the particular, communication would be impossible. But, in turn, the stability of a symbol system, a stability which must extend between individuals and over time, could probably not be maintained unless it functioned as a communication process in the interaction of a plurality of actors. It is such a shared symbolic system which functions in interaction, which will here be called cultural tradition.
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> . . . Learning then means the incorporation of cultural pattern elements into the action systems of individual actors. . . . The analysis of the capacity to learn then comes up against the problem of the place the cultural item in question can assume in the personality system. One aspect of this problem is its compatibility with the other elements of culture which the same individual has already learned or is expected to learn. Each individual actor is a biological organism acting in an environment. Both the genetic constitution of the organism and the non socio-cultural environments set limits to this learning although these limits are very difficult to specify. And finally, each individual actor is subject to the exigencies of interaction in a social system. This last consideration is peculiarly important in the problem of culture because of the shared aspects of cultural tradition.

> ... there is a careful absence of logical symmetry in the relations of social systems to culture on the one hand and to personality on the other, as its implications must not be pressed too far ... the systems are types of empirical action systems in which both motivational and cultural elements are combined ... in a sense parallel. The basis of integration of the cultural system is, as has been noted, pattern consistency. The case of interpersonality is its structural pattern consistency plus functional adequacy of motivational balance in a concrete situation. ... A cultural system does not function except as part of a concrete action system, in fact it is. ... Personality is the relational system of living organisms interacting with the situation.

Development of a self-system

Sullivan (1953) ascribes the development of a "self-system" as a product of educative experience, part of which is of the character of reward, but a very important part of which is the function of reducing anxiety and maintaining it within tolerable boundaries. The boundaries of the self-system are established during the first few years of life by means of prescriptions and prohibitions in the action mode of expression. The boundaries serve to limit the range of perceptual experience as well, since the child - perhaps as an adaptive buffer - learns to selectively inattend to perceptual information which elicits associations or evokes actions which place him in conflict with his self-system's boundaries.

The child's caretakers through their physical, cultural, tonal and emotional interactions with him, or by their behavior in his presence teach him more than by their words alone. The goal of the self-system is to secure the necessary satisfactions in life without incurring undue anxiety. Its actual functioning is often unfortunate since it restricts not only the range of possible actions a child might take, but also his perceptual awareness of large segments of available stimulus information in the environment. Sullivan considers the self-system extraordinarily resistant to change.

In addition to its resistance to change, the self-system has the positive function of providing security, relatively anxiety-free boundaries from which the child can explore and integrate new experience. The child whose care is confusing and inconsistent may have difficulty establishing the boundaries of his self, and for the sake of security or anxiety-management, such a child may limit his

attention to experience by constructing very tight and confining boundaries within which to develop the norms of acceptable perceptions and actions. While he may burst beyond those boundaries at times, the anxiety his experiences produce accounts for his return. Thus, it is probably the erection of the space within the boundaries of the self-system, rather than the boundaries themselves, which affect the fulfillment of a child's potential. Sullivan states:

> ...but insofar as the security fiers is confusing to the child, and insofar as the authority situations are incongruous from time to time so that, according to the measure of the child's maturity, abilities and experience, there is not a big sense of them -- then, even before the end of the thirtieth month, I'd say, we see instances in which the child is already beginning to suffer a deterioration of development of high-grade foresight. In such cases it is quite probable that, in the later stages of development, conscious exercise of foresight, consisting in study of how to get to a more-or-less recognized goal, will not be very highly developed.
>
> ...and insofar as the sanctions and the operations which will avoid anxiety make sense, can be consensually validated, the self-system effectively controls focal awareness so that what does not make sense tends to get no particular attention. That is, effective manifestations of awareness are warmly shepherded by anxiety to be more or less in the syntaxic mode -- the mode of experience which offers some possibility of real interpersonal communication.
>
> The control of focal awareness results in a combination of the fortunate and unfortunate uses of selective inattention. The sensible use is that there is no need of bothering about things that don't matter, things that will go all right anyway. But, in many cases, there is an unfortunate use of selective inattention, in which one ignores things that do matter, since one has found no way of being secure about them, and excludes them from awareness as long as possible. In any case, the self-system controls, from well on in the juvenile era, the content of consciousness, as we ordinarily call it -- that is, what we know we're thinking about -- to a very striking extent.

The self-system is a useful concept for thinking about learning styles since it allows for considerable individual variation within a culture, and posits a mechanism - selective inattention - which is observable and therefore researchable. The self-system's resistance to change -- to learning -- is areas defined as conflictual adds to its appeal. It helps explain why experience alone - no matter how enriched - is often not as effective a teacher as we might expect. The dynamic aspects of the self-system as an organizing force in the personality

allow us to explain changes which do occur in people through unique relationships, chance conversion experiences, or certain therapeutic encounters as examples of Anderson's redefinition of his perceptual and action worlds.

Construction of the Perceptual World

Werner and Kaplan (1.63) outline a theory which states that the child who is initially undifferentiated from his mother, begins to make that differentiation and throughout to develop a sense of what is external to both of them. The "primordial sharing situation," as they call it, begins when the infant begins to share contemplated objects with the other, usually the mother. As mother and child begin to look-out on the world together, the child is barely aware of his separateness from his mother or from other objects in his environment. The initial acts are social ones, involving mother and child in exchanging things, touching, looking -- all with the other. Eventually a social gestural device is formed, i.e., pointing at an object. Soon the infant invites the other to contemplate the objects as he does himself. Referring to an object by touching, looking, or pointing entails mainly an invitation to the other person to "look at that thing over there!" There is an expectation that the other's perceptions will match one's own. A higher level of sharing eventually develops though the use of symbols, particularly names or labels. Symbols, in a sense, free the object from the concrete situation in which it is pointed to. Characteristic features of the object are lifted from the concrete experience and translated into another medium. Thus symbols are bound to concrete experiences in situations shared with persons who are intimately linked to each other, as in caring relationships.

As the self and the world of objects become differentiated from one another, they also stabilize, and become predictable. The initial internalized sensory-motor pattern by which an object is grasped becomes transformed into an internalized cognitive schema. The initial sensory-motor schema is intimately tied to its signal for action, while the cognitive schema can be represented in another medium, and manipulated symbolically, independent of its possible actions.

The infant's early life includes much activity directed towards acquisition

of a world of objects, during which time his bond with his mother loosens only gradually. The atmosphere in which the infant accomplishes this feat needs to be relatively free of need or anxiety. He approaches objects from the security of his mother's reach, and so proceeds to the unfamiliar without excessive fright. Animal studies (King, 1966) indicates as well that the protection of the mother helps control the dangers of novel stimuli, and the infant's approach to them is mediated by pleasant feelings associated with the mother. Dangerous novel stimuli, if approached, lead to subsequent avoidance. The infant learns to explore independently, while being protected from serious danger, and he does so without being directly tutored by the mother. In contrast to the exploratory, protected play could be observed in the younger siblings of our most anxious, vigilant preschool children in Chicago. They were constantly on guard. The cost of their vigilance seemed to be considerable restriction of exploratory activity. It appeared, that for them, the world was a dangerous place. What was not immediately threatening could be ignored. Diverting energy into explorations of the benign aspects of his surroundings appeared to run contrary to the child's preoccupations with self-protection. While vigilant behavior can be observed among many children whose early experiences have not been sufficiently organized or protected, the imagery is captured at its best by Mattick (1965).

The relationship between early development of perceptions and symbol systems, outlined by Werner and Kaplan, and the subsequent development of an action "space" or action disposition, can be described in terms of the life space in which the child can move with security and confidence. In Martin's (1970) study of children's information gathering styles in a free play situation (in our Chicago preschool), it was apparent that successful information gathering was dependent on freedom of

movement in the situation. While the relationship between activity and information gathering appears commonsensical, i.e., a child who stands still can't gather much more information than what he can immediately see or touch, the observational reality was more impressive. Children who did in fact move, but who were cautious, appeared to be "testing the ice" with every step they took and every muscle they moved. Instead of moving freely without thinking about it, they had to consider the boundaries of the action space at each move. This preoccupation with their own "moves" occurred primarily among children whose explorations and classroom learning were generally inhibited, and who were uncomfortable in social, especially verbal, interactions. It appeared that their uncertainty about the stability of the object world became translated into the action realm, and substantially reduced their opportunities for gathering information in a new situation. All of us, in new, unfamiliar, and especially uncertain situations, tend to function less efficiently than we might otherwise. It is commonplace to go back for the second (or nth) time, and to notice suddenly that the information in that place was far more extensive than we remembered. Thus, to understand learning styles, we need to link the development of perception and symbols with the roots of self-initiated actions.

In commenting about children whose early experiences have been atypical, Werner comments on the results of "weak" object and symbol development,

> . . . because of impairment of early mother-child interchanges (in combination with other factors), the worlds of certain individuals lack that stability of organization found in normally developed individuals: these worlds, therefore, break down rather easily under external or internal stresses and there follows a disillusion, often painfully profound, of the self-other-object articulation.

In discussing the autobiography of one schizophrenic and her recovery, he notes the upsurge of "nameless demonic things" when the normal tie between self and objects, or self and symbols, breaks down. Evidence from the Werner, Bierman, and French (1971) study of Hawaiian children suggests that biological vulnerability is not always a major contributor to later pathological developments. Children, who were at risk in infancy due to prenatal or postnatal problems, were not necessarily the most pathological by mid-childhood. In the presence of a supportive environment, by which they meant stable familial relationships, many early predispositions to pathology were ameliorated. On the other hand, robust infants reared in disorganized circumstances with restricted emotional support often, by middle childhood, demonstrated a higher incidence of pathology than infants with early constitutional weaknesses.

The normal process of development includes various critical stages in the formation of referential objects and symbols. Winnicott's term, "transitional object," captures that stage, in Werner's view, when early objects are

> . . . not yet articulated as self-contained entities, but to some extent overlap with the self and with the mothering one. Food . . . constitutes . . . the first transitional object from mother to child, and later on it may be a teddy or a blanket . . . Through these security engendering objects, the child gradually begins to conquer and know a world which belongs to the self, and yet is not fused with the self--a world with familiar, independent objects. Perhaps nowhere is the significant role of such transitional objects as clearly manifested as in the individuals who have regressed to an objectless world and are beginning to emerge from this chaotic universe into a world of true objects.

Transitional objects, in Werner's view, may be thought of as intermediaries between objects and symbols. In normal child development, as in redevelopment which sometimes occurs through therapy, one moves "from protosymbols to true symbols--symbols confounded neither with the objects they represent nor with the

"mother", --(or others), with whom one shares the object."

Vernon (1952), in his excellent historical presentation of evidence for perceptual styles, reviews much of the evidence available up until 1952.

> There is comparatively little experimental evidence as to the specific determination of perception by particular individual interests, although the evidence from everyday experience is fairly conclusive.
>
> There has been a decline in the popularity of ascribing differences in the mode of perceiving to inherent typological differences of a temperamental nature. But the most recent work on perception as a function of the total personality is reviving this approach. Thus, Klein describes the results of experiments demonstrating the influence on perception of three pairs of contrasted attitudes which he considers to be inherent in the personality and closely linked with the ego structure and control system. One typology, of a rather different nature, has however been advanced comparatively recently: the visual and haptic typology of Lowenfeld (1945). These types characterize those individuals, mainly children, who perceive relatively more easily by vision, and those who perceive relatively well by touch and kinaesthesis. Many blind children naturally fall into the latter class. But the main difference between these two types lies in their ability to use visual or kinaesthetic or tactile imagery. Thus, this typology resurrects the earlier rather popular subject of the differing imaginal types, for the existence of which there is much evidence. There seems very little doubt that in certain individuals imagery on one modality is relatively clearer and more vivid than imagery of other modalities.
>
> To sum up, it seems most probable that the individual carries with him into every perceptual situation, either in the laboratory or in normal life, his characteristic sensory abilities, intelligence, interests, and temperamental qualities. In so far as he may specifically relate any of these to that total perceptual situation, his responses will be colored and to some extent determined by these inherent individual qualities. Thus, his response may vary not only according to the nature of the qualities possessed, but also to the degree to which they become involved in the perceptual situations.

The child's perceptions, then, can be said to develop out of a particular social experience with people on whom he depends for survival and satisfaction.

His perceptual world grows out of shared gazes, noises, voices, textures, etc. While some aspects of his perceptual world may result from observational learning, from repeated events, models, contextual coincidences, etc., it seems reasonable to assume that the most powerful model, attention-getter, reinforcer, and link to survival and satisfaction will be the caretaker. She (he) will have an inordinate influence on what he sees, hears and touches. Stimuli which the caretaker attends to, calls the baby's attention to, or teaches the baby to associate with discomfort, or pleasure will help him to construct a perceptual world within which he can navigate.

Imitation, Modeling, and Reinforcement History

In developing a case for the socialization of learning styles, we must ultimately ask what is learned and how. Parsons', Sullivan's, and Homans' theories all have a dynamic emphasis, which implies complicated internalizations of the object world, plus the prescriptions and proscriptions concerning relationships with the object world. We are inclined to favor a dynamic theory of personality because of the consistency of learning styles over time, and their resistance to change. Nevertheless, probably only a small part of any child's learning style has the character of an unalterable, internalized system. Most of his learning style --as with much of all behavior -- is probably learned through observation, reward, modeling, imitation, etc. Aspects of learning style which are socially learned, and not linked to an internalized self-system, are far more responsive to change or to extension. Since clinical work with children only slowly reveals which aspects of life style or learning style are easily changed and which are resistant to change, it is not a simple matter to speculate about this distinction. Nonetheless, the distinction should be made.

Imitation, modeling, and other related concepts explain a variety of learnings which do not come into conflict with the boundaries of the self-system. Bandura (1962) suggests that, in order for imitative responses to occur, the child's behavior must be within the perceptual and motor capacity of the observer. Once this condition is met, the child will create novel behavior out of imitations.

Hayes and Hayes (1952), in a paper discussing imitation in a home-raised chimpanzee, discussed the reasons for imitation failures: (a) problem solving ability is a function of past experience; (b) a response cannot be imitated unless its components are in the subject's available repertory of

voluntary acts; and (c) a child cannot learn readily by observation a problem which he cannot learn readily by more direct means. While the imitative ability of the child appears to be much like that of man, whether a given subject can imitate a particular task depends on other abilities determined by maturity, experience, or a combination of both. The likelihood that an individual will attempt to use his imitative ability in a given situation probably depends on a set established by past experience.

Positive experiences play a major role in the child's selectivity with respect to imitation. Sanford et al.(1953) have shown that the child will imitate the model who rewards the model's nurturant behavior, as the primary source of imitative behavior, Yando (1972) have recently reported that the amount of imitation in which a child engages is complexly determined by the child's cognitive level, his attitude toward the person he is imitating, and the nature of the task.

Flanders (1968) in an extensive review of research on imitative behavior, surveys the theories of imitation and classes of research on imitative behavior. He draws a parallel between influence attempts and imitation, arguing that a recipient of a communication must be persuaded to do at least three things: he must attend, he must comprehend, and he must accept. In addition, a recipient must retain and take action upon communication. Mowrer (1960) further states that "given the right circumstances, behavior can be facilitated, extinguished, or inhibited, it can occurring." This formulation is consistent with Hebb's (1972) statement that sensory-sensory loops are occurring all the time.

Reinforcement history is offered by Bijou (1972) as a parsimonious explanation for the development of personality traits and cultural patterns. The child's reinforcement history consists of the sequences and interactions that strengthen his behavior through contacts with reinforcers. Reinforcement history, in this theory, has three major consequences: (a) the development of operants - or stimulus-response functions; (b) the shaping of cultural behaviors

(c) the formation of personality traits and patterns through interactions in the setting.

A reinforcement-history approach to understanding complex behavior is most helpful when the behaviors in question prove to be specifiable or changeable, and most helpful when efforts to change them are accompanied by resistance or discomfort. Some aspects of learning style are undoubtedly shaped by external factors whose effects are responsive to other sets of external reinforcements.

In the relationship between imitation, modeling and internalization, Bandura (1969) comments,

> If [the child] is to act like [the] model as a significant relation, it cannot be known for certain that he has introjected [him] or identified with him. All we can safely say is that it is probable that [the] learned something from his relationship with ... It must be granted that in certain critical and model situations, such as boys taking on attributes of the father, the general body of analytic observations strongly supports the assumption that introjection of, or identification with, the father is taking place.
>
> Imitation is necessarily an aspect of identification. Imitation is involved in only one aspect of introjection -- the imaginary reproduction of the object -- and it need not involve significant and corporative values and beliefs. By itself, imitation does not necessarily bring about significant internalization, although imitation necessarily involves coordination of some of the self and object representations in its execution, it need not significantly or enduringly change the self representations. In this regard imitation may occur either in the context of clear boundaries between the self and the object, or, as in early infancy, in the context of underdeveloped or blurred boundaries.
>
> The criterion of significant investment helps distinguish identification from ordinary imitative learning. A skill or mode of functioning may not be acquired in the context of a significant relationship with the model, or for the sake of maintaining, transforming, or replacing that relationship. The major full-fledged identifications typically are based on models provided by parents, siblings, and others in whom the subject is in early, close, dependent and continuing association... It takes a highly significant investment to initiate and sustain major identifications. Early identifications condition later, usually less primitive and less crucial identifications. They set the directions and limits of the later ones. Clinical analysis will reveal that one's attachment to an identification could only have developed in the matrix of those established in early childhood; that features of the new model were singled out, projected onto it, and idealized all as part of an unconscious strategy of adapting the basic identifi-

> cations to current problems, possibilities, and personalities; and that in this defensive as well as adaptive strategic move, the early identifications have been brought up to date.... My point is to call attention to the continuities hidden or concealed in apparent discontinuities. Identification is based on primary process (ordinarily unconscious) imitation: in some other guise, it includes the idea of fusing or merging with the object, and in this way continuing a relationship with it.

Bruner's position on the distinction between learning via identification in which the learning is fixed internalized, or learning by imitation which allows more latitude for re-learning or unlearning, seems to us a most helpful way to look at children's learning styles. Schaefer (1970) points out that in psychotherapy, the therapist helps the patient to become aware of stimuli he has excluded; he becomes re-acquainted with aspects of the stimulus world of which he has been selectively unaware. Conflicts between environmental stimuli and the boundaries of his self-system may have for years led him to avoid becoming aware of aspects of himself, others and external realities which were easily accessible to his friends. Many adults who experience a period of intensive psychotherapy (or conversion) report new interest in aspects of the environment they had previously ignored. Their perceptual world broadened as did the number and kinds of actions they would take for pleasure, or for more effective coping with the world. Child patients, and children who have experienced drastic,though favorable,changes in environment often report similar changes in their perceptual and action worlds. Sometimes a child becomes "transformed" in an educational setting; usually there is an extremely sensitive and 'invested' teacher involved. Throughout life, most people can cite instances of significant relationships - or occasions - which have tilted or slanted our views. Most of these changes have to do with an approach to the world which does affects a broad range of subsequent actions. Since opportunities for observational and imitative learning are so extensive, it is of interest that children - and adults - use so few of them, but rather continue to perceive and act upon the world according to a consistent formula.

This consistency of attentional focus, and the repetitiveness of action choices provides evidence for the consistency of learning styles as growing out of early constructions of a perceptual world and an acceptable action space. From a theoretical point of view, it is important to sort out how all learning styles develop. From a practical point of view, it seems more crucial to develop options for expanding severely restricted learning styles which foreclose many developmental options for young children.

Summary and Conclusion

A child's learning style is his characteristic way of approaching the world, learning its properties, and testing himself in interaction with it. It appears to be rooted primarily in (a) the perceptual world he has constructed--and later elaborated--from interactive and observational experiences during his earliest years, and (b) the action space, or range of actions, he can use in interacting with the environment. The child constructs his perceptual world and his action space in the context of his family (primary caretakers), their traditions, and their national culture. Some aspects of learning style are probably the simple products of a child's observational learning, modeling, imitation, and reinforcement history, while others are reflections of his personality structure. While it is not a simple matter to untangle these two origins, the relatively stable, pervasive and change-resistant aspects of learning style are probably those embedded in personality structures. Our concern is with the development of those stable structures of the human personality which appear to limit the elaboration of cognitive structures in later developmental stages. Three major theoretical sources have shaped our current formulation. These are Werner and Kaplan's, H.S. Sullivan's and Parsons'.

In constructing his perceptual world, the child depends upon his caretakers first to help him sort out what is relevant from what is irrelevant in his sensory field, and then to develop a symbolic shorthand of gestures and later words to communicate about a world they share. It is hypothesized that caretakers distinguish figure from ground in their daily interactions with the child in ways which reflect (a) their cultural biases about the

informational relevance or importance of certain stimuli and (b) their values --idiosyncratic, familial and cultural--which are laden with feelings, and expressed in terms of prohibitions, and less often prescriptions or preferences. The value-laden, emotionally loaded aspects of these interactions probably constitute the most powerful influences on the early socialization of a child's learning style.

Before long, the child finds his behavior being shaped in the realm of action as well as in the realm of perception. The concept of a self-system as articulated by Sullivan (1953) has provided us with a way to think about the caretaker's impact on the active aspect of learning style while the internalization of cultural values as formulated by Parsons offers a handle on the ways a child learns his culture's preferred modes of learning and acting. In Sullivan's formulation, the child learns that certain kinds of actions get him in trouble with the people who control his life. He learns to avoid what is prohibited and to conform to what is prescribed. In so doing, he develops a self-system which guides his action choices, and if his caretakers give consistent messages, they help him to build a relatively predictable, anxiety-free life space. In the process of developing a self-system that "works", the child begins to attend and inattend selectively to stimulus information in his environment. The economy of the self-system seems to require that he stop paying attention to information which he cannot use. If his caretakers prescribe and prohibit actions, he may remain relatively free to perceive, think about, and have feelings about a wide range of sensory stimuli. If the prohibitions and prescriptions are more global, the boundaries of his self-system may apply to thoughts and feelings as well. It is not much of a leap in logic to suggest that learning will be

markedly inhibited if a child learns not only to restrain his actions, and avoid attending to stimuli he cannot act upon, but also to preclude from awareness those stimuli which evoke prohibited thoughts or feelings.

Similarly, a child learns to perceive and to approach the world in ways valued by his culture. He develops a cultural system just as he develops a self-system, with the help of his caretakers. As Parsons astutely points out, a culture teaches a conception of reality along with a moral code. Reality is in some sense defined by a culture and thus the child internalizes a perceptual world and tests it in action against a particular "brand" of object world. The anthropologists' term, "world view," captures this notion quite well. The child essentially develops a world of perceptions and a repertoire of appropriate actions which are consistent with his parent's world view, and the theory of action which guides their interaction with it.

Ways of perceiving and acting which are derived from a child's self-system or cultural system provide him with a characteristic approach to his interactions with the world. If he learns "to work" within these systems, he can probably enjoy life and limit uncomfortable encounters. The question remains, are some cultural systems and/or self-systems too costly, and on what grounds? Do some tend to foreclose further learning and development, while others do not? Even among children whose development is proceeding satisfactorily, can we see examples of learning styles which unnecessarily preclude many opportunities for growth? Can children develop equally well in all areas, or is it necessary that some developmental paths remain undeveloped in order that others may develop more fully?

Having begun this study as a search for a framework which would explain some results of preschool intervention studies and the variations in play behavior among children of high and low competence, are we any closer to an understanding of the learning difficulties observed among many young, poor children, or to an understanding of learning in general? We haven't really mentioned cognitive or language skills which are the two most studied cognitive functions among disadvantaged children. To over-simplify somewhat, the child's definition of his perceptual world, the "space" in which he is free to act, and his repertoire of permissible actions will influence the extent to which he can elaborate, organize, construct and reconstruct his cognitive structures. Language, as a short-cut symbol system, and as a communication system, is not especially necessary or useful if the perceptual world and action space are too narrowly and inflexibly bounded by the self-system (and/or the internalized cultural system). The short-term effects of many intervention programs have been explained away as too little too late. Without disagreeing altogether with that perspective, another explanation seems plausible. Much as pouring water on a closed bottle will keep it wet as long as the pouring continues, short-term effects are observable while external rewards and supports are present and for a short time thereafter. Whatever keeps the bottle closed--e.g. the self-system--may account for why so little "gets in" or "stays in" and why the effects seem to "dry-up." This formulation is not meant to be a flip rejection of many important findings from cognitive and language research studies of recent years. It is rather to suggest that we step back form a purely psychological formulation, and look at the "why" and "how" of early learning in addition to the

"what" of it. The development and persistence of life styles and learning styles which develop early and persist through much of an individual's lifetime seem to us a most importance arena for research.

Research implications

How does a child learn from his parents what is relevant to perceive, what he must perceive, what he must not notice? This is the first set of questions which must be answered if we are to understand how a child constructs a perceptual world which so powerfully organizes his sensory experiences throughout life. Are there critical times for certain kinds of teaching, are there certain ways in which parents deal with children which are especially powerful in developing this perceptual world?

The second set of questions relate to the definition of an "action space." How does the child learn the preferred cultural action patterns? How does he learn, and when, what actions must and must not be in his repertory, or when permissible actions depend on the situation? Are some action patterns more restrictive to future development than others? Are there any advantages to those action patterns which seem to restrict development, i.e., are they deeply imbedded in cultural systems which must be examined before we suggest that they should be changed?

While a search for answers to these questions requires longitudinal studies to establish critical ages, stages, and transition points, it is possible to begin with studies which address one piece of the problem at one age, and to move on from there. The writer proposes to study the ways in which mothers of nursery school children call attention to relevant features of games and tasks (sensory information) and encourage or discourage certain

actions in relation to the information given in the task. Preferences of mother and child for various kinds of stimuli will provide further data on the ways a caretaker's preferences are reflected in the child's choices.

What do the child and mother pay attention to in situations where the stimulus inputs are delimited according to their visual, auditory and tactile characteristics? If there is a preference for one sensory modality, does the mother and her child manifest more complex information gathering strategies in relation to that stimulus class, and are there fewer or more restrictions placed on actions based on information from the preferred sensory channel?

We will also ask each mother to run through the same set of tasks with a child other than her own. In this way we expect to highlight the ways in which she calls attention to what she considers relevant information in the task. Presumably with her own child, she has a shorthand way of communicating, which may be less observable because it is longstanding and occurs in rapid exchanges.

In addition to the central questions related to the socialization of a learning style, we are interested in the range of approaches to information gathering which can be observed in nursery school children. This information, while of interest in its own right, will be helpful in planning a longitudinal study which will be our next step.

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